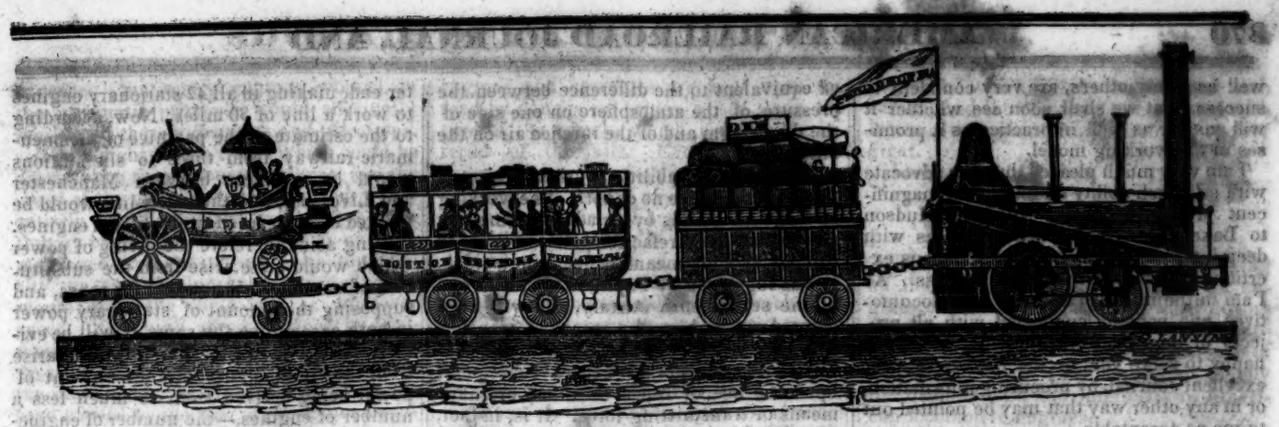

AMERICAN RAILROAD JOURNAL, AND ADVOCATE OF INTERNAL IMPROVEMENTS.

PUBLISHED WEEKLY, AT No. 35 WALL STREET, NEW-YORK, AT THREE DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

D. K. MINOR, EDITOR.] SATURDAY, JUNE 20, 1835. [VOLUME IV.—No. 24.

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AMERICAN RAILROAD JOURNAL.

NEW-YORK, JUNE 20, 1835.

We have been again favored by Mr. G. RALSTON, of Philadelphia, now in London, with an interesting letter, from which we make the following extract; and we take this method of returning our thanks for the numerous favors conferred upon us and our readers, by Mr. Ralston, in forwarding early accounts of improvements in the construction of railroads and railroad machinery. He will please to accept our especial thanks for the Report of Dr. *Barlow*, "on the transverse strength and other properties of malleable iron," of which we shall endeavor to give a full account in our next number; and also for the papers on "Pneumatic Railways," one of which, containing the opinion of Professor Faraday, and Dr. Lardner, will be found in this number.

Of this "new plan" we confess that we are not able to form an opinion, as we have time only to *print*, not to read it. We shall take time to read the other before it is published, and hope then to be able to give a more correct idea of the project than we now possess.

Extract from a Letter, dated

LONDON, May 12, 1835.

Dear Sir,—I observe by the "American Railroad Journal," which I received from New-York yesterday, that you have published two papers which Mr. Robert Stephenson kindly allowed me to copy from his original MS., and which I sent to the "Journal of the Franklin Institute" in Philadelphia. These articles are, 1st, Mr. S.'s Report on the "Undulating Railway System," and 2d, his "Remarks on the best form for Railway Bars."

I am very much pleased that you insert matter of such excellent quality in your useful Journal, and to enable you to continue the subject "of the best form of rail," I beg you will accept a book I send herewith, being a Report and Appendix made by Professor Barlow to the London and Birmingham Railway Company on this subject. You will observe that he controverts Mr. Stephenson's arguments in favor of "fish-bellies," and gives a decided preference to parallel rails. I think this report will please your numerous readers. I must call your attention to the circumstance that, on the Liverpool and Manchester Railway, they are now taking up (as rapidly as is convenient) the fishbellies of 35 lbs. per yard, and laying down in their place parallels of 60 lbs. per yard. You know the increase of weight of locomotives on this road is very considerable; they formerly weighed 4 or 5 tons—they now weigh 10, 11, and 12 tons. So also on the Stockton and Darlington Railway, the rails originally weighed 28 lbs. per yard; they have removed them, and substituted rails of 45 lbs. per yard. On all the railways in use, or being constructed in this country, they consider heavier locomotives, and of course stronger rails, as most expedient and economical. Enclosed I send you a tracing of the new rail for the "Grand Junction Railway," (from Birmingham to Warrington, to make the connexion, by railway, from London to Liverpool.) [See accompanying figure.] You will observe that it is a parallel rail, of 60 lbs. per yard, and that it is somewhat in form of Mr. Robert Stevens's (our distinguished countryman) T rail—having as much base, which rests upon the ground, as surface for the wheel to run upon. The Engineer of this railway is Sir George Stephenson, (lately knighted by the King of the Belgians,) the father of Mr. Robert Stephenson, who is the Engineer of the Birmingham and London Railway. These two eminent men being in habits of constant intercourse, I think it highly probable that this form of rail has been adopted with the sanction of both of them; and if it be so, the fishbellies will never come into favor again.

I also send you two papers on the "Pneumatic Railway System," contrived and patented by our countryman, Mr. Pinkus, of Philadelphia. The shares for the Company have all been taken with great eagerness, and a line of a few miles in length is to be immediately laid down near London, for the purpose of testing its practicability and utility. The members of the association, as

well as many others, are very confident of success; but we shall soon see whether it will answer as well in practice as it promises in the working model.

I am very much pleased that you advocate with so much ability and zeal that magnificent project, a railway from the Hudson to Lake Erie. I read your articles with deep interest, and hope your judicious exertions will be crowned with success. As I am in the midst of railway iron, locomotives, and persons connected with all projects of internal improvements, I will be happy to serve you, or the readers of your excellent Journal, by procuring information, or in any other way that may be pointed out to me as acceptable.

I am, very respectfully,
Your most ob't serv't,
GERARD RALSTON.

PNEUMATIC SYSTEM OF RAILWAY.

Royal Institution, 3d Feb., 1835.

My Dear Sir,—The points in your letter of the 26th of last month, which you put to me for an opinion, are such that I have no hesitation in agreeing with you upon them.

To enumerate briefly these points:—the *principle* of communication of power is correct; the use of local steam engines is highly advantageous, both for cheapness of force and capability of varying it when required; the necessity for levels will, I presume, therefore be greatly obviated; the association of cylinder and rails is such, that the whole road must (with sufficient thickness in the cylinder) have great strength and firmness; the absence of locomotive engines removes much of the cause of derangement which the road would have to sustain; and I do not see how the governor and carriages can leave the railway.

You know my objection to giving a general opinion in reference to the profitable application of the plan in question; but I may here add, that the reserve I feel originates simply in my possessing no practical knowledge of the construction, expense, and profit, of ordinary railroads.

I am, my dear Sir, very truly yours,
M. FARADAY.

Wm. Hosking, Esq., F. S. A., &c.

Opinion of Dr. Lardner upon the Pneumatic System of Railway.

I have read the specification of the patent for the pneumatic railway and the accompanying papers, and have also examined the drawings and models which have been submitted to me by Mr. Hosking.

Two methods have been heretofore employed for rendering steam power available in transport upon railways; one by causing a travelling or locomotive engine to move with the load which it draws, the other by constructing, at intervals of about a mile and a half, stationary steam engines, the power of which is transmitted to the load by a rope carried along the road upon rollers or sheaves placed between the rails. The train being attached to this rope, is drawn by the power of the engines from station to station. The object of the pneumatic railway is to substitute for the rope a partially-exhausted tunnel; to employ the fixed steam engines to work air-pumps, by which a rarefaction of the tunnel shall be maintained; and to cause the trains to be tracked upon the railway by connecting them with a diaphragm or piston placed in the interior of the tunnel, so as to have that part of the tunnel in advance of the piston exhausted by the engines, while that part behind the piston is open to the atmosphere. An effective impelling power is thus obtained equivalent to the difference between the pressure of the atmosphere on one side of the diaphragm and of the rarefied air on the other.

Of the practicability of this project I think there can be no doubt. The working of large air-pumps by an adequate moving power, and the rarefaction of air in tubes or tunnels by such means is not a new idea. It was suggested by Papin, in the latter end of the seventeenth century, and was even pointed out by him as a means of transferring power to a distance, without the loss by friction and other causes consequent upon the use of ropes or other ordinary means of transmitting force.* It is, in fact, a well understood principle in physics, that whatever moving force be expended in producing the rarefaction of air in a cylinder or tunnel, must necessarily be followed by a corresponding force on the other side of a diaphragm moving air-tight in that tunnel, and exposed to the free action of the atmospheric pressure. In the present case, supposing the structure of the valvular cord and the pneumatic piston to be perfect, the opposite side of the diaphragm will always be pressed by an effective impelling force, the amount of which may be calculated upon these principles. It will of course be perceived that no original moving power is obtained from the tunnel, or from the rarefied air; the rarefaction gives back the power expended by the stationary engines and nothing more; and the tunnel must therefore be regarded merely as a substitute for the ropes in the common method of working railways by stationary engines. But it is evidently attended with several advantages in comparison with the latter. A very large proportion of the moving power of stationary engines worked by ropes is intercepted by the resistance from the weight and friction of the ropes, sheaves, barrels, drums, &c. All such waste of power is removed by the pneumatic tunnel.

The original expense of ropes and their wear and tear would be likewise saved. Some notion of the extent of this saving may be collected from the following facts: when the Liverpool and Manchester railway was about to be brought into operation, a question arose as to the expediency of working it by stationary engines, and estimates of the expense were made by competent engineers. The total amount of capital to be invested in moving power was estimated at about £120,000; of this above £25,000 was devoted to ropes, sheaves, drums, and other necessary accompaniments. The total annual expense of maintaining the moving power was estimated at £42,000, and of this about £18,000 was appropriated to the wear and tear of ropes, sheaves, &c. Thus it appears that the method of transmitting the power of the stationary engines to the trains by ropes would absorb about 20 per cent. of the invested capital, and their maintenance would consume about 43 per cent. of the annual expenditure.

Another source of comparative economy would obviously be the diminished number of stationary engines. In the estimate already referred to it, was calculated that the distance of 30 miles should be divided into 17 stations, with two 40 horse engines at each station; besides these there would have been two engines at the bottom of each inclined plane, one at the tunnel, two at the top of the planes, and one at the Manchester end, making in all 42 stationary engines to work a line of 30 miles. Now, according to the estimate of the patentee of the pneumatic railway, from three to six stations would be sufficient between Manchester and Liverpool, and the whole line would be worked by from six to twelve steam engines. Putting aside therefore the saving of power which would arise arise from the substitution of suction in the tunnel for ropes, and supposing the amount of stationary power in both cases to be the same, it will be evident that a material saving would arise from the circumstance of that amount of power being derived from so much less a number of engines,—the number of enginemen, assistants, &c., besides the interest on capital, being considerably less.

Some notion of the economy of power likely to arise from superseding the use of ropes may be collected from the result of experiments made by Messrs. Stephenson and Locke on the resistance arising from the friction of ropes. They found that a load of 52 tons drawn by stationary engines worked by ropes through mile and half stages, offered a total resistance amounting to 1156 lbs.; of this 582 lbs. arose from the friction of the load, and 574 lbs. from the friction of the ropes. In the case of the pneumatic railway, the friction of the rope is replaced by the friction of the air-pumps and of the impelling apparatus, and it will be evident that the latter, compared with the former, must be almost insignificant. Hence the power wasted in its transmission from the stationary engines to the load, which in one case amounts to 50 per cent. of the whole moving power of the engine, in the other is of comparatively trifling amount.

Slopes on railways will always be objectionable whatever power be used; for even the most gentle ascent will increase the resistance of the load in an enormous proportion. The difficulties, however, which they present are materially less when the line is worked by stationary than by locomotive engines, and would be still further diminished by superseding the rope; the resistance arising from the rope being always greater on inclined planes than on the level, owing to its increased thickness and consequent weight. A load which requires a 4½ inch rope for the level requires a 5¼ inch rope upon a slope of 1 in 100. The weights of equal lengths of these ropes would be in the proportion of about 2 to 3, the slope requiring one-half more weight of rope than the level. Besides this, the moving power on a slope, in addition to the ordinary friction which it has to overcome on the level, has likewise to draw up the weight of the rope, —a resistance which will be increased in proportion to the acclivity of the slope.

The disadvantages produced by slopes when locomotive engines are used are still more formidable. The same engine which is fitted to work upon the level is altogether inadequate for the slopes, the consequence of which is, either that the locomotive is strained beyond its power by working up the slopes, and rapidly destroyed, or that the engines must be more powerful than is requisite for the common level of the road, and thus power and expense wasted; or finally, that an auxiliary engine must be kept constantly ready at the foot of each slope, with its fire lighted and its steam up, ready to help up the trains as they arrive. Unless the trains be almost incessant (which, even on the most frequented railroad, they never can be,) this last expedient, which is the one adopted on the Manchester line, is attended with great waste of power and

*Papin proposed to obtain an active force at one end of an extended tube by the application of water power at the other.—W. H.

expense. Stationary engines worked on the pneumatic principle would effectually remove all these difficulties and objections.

The weight of the trains which could be drawn upon the pneumatic railway, and the speed of the motion imparted to them would entirely depend upon the power of the stationary engines. As the friction or other resistance does not increase with the velocity, the same absolute expenditure of power would draw the same load at whatever speed. The high speed attained by locomotive engines has been attended with great expense, but this has not arisen from the increased expenditure of power. It has been caused by the rear of the egines themselves consequent on their rapid motion on the road, and by the necessity of sustaining a fierce temperature in the fire-place in order to be able within the small compass of these engines to generate steam with sufficient rapidity to attain the necessary rate of motion. As the magnitude of the stationary engines would not be limited, and as they would not be subect to the injurious effects of motion on the road, steam could be produced in sufficient quantity for the attainment of any required speed, without increasing its cost, or in any way impairing the machinery.

One of the obstacles to the attainment of great speed by stationary engines worked by ropes, is the delay produced in transferring the trains from engine to engine, and from station to station. The momentum imparted to them is lost at each change, and these changes occur every mile and a half, so that the train has scarcely attained its requisite speed, when its motion must again be checked in order to hand it over to another engine. This difficulty is removed by the pneumatic system: there being no rope to be detached and attached, the engine passes on by its momentum from station to station, and a contrivance is provided by means of a valve at the stations, by which it is brought under the operation of the next engine without stopping its motion.

Although the danger of accidents to passengers on the present railways worked by locomotive engines is considerably less than that of travelling by horse coaches on turnpike roads, yet serious accidents have occasionally occurred. These have generally arisen either from the locomotive engine running off the rails, from one train running against another, from the locomotive engine breaking, or, finally, from persons standing upon the rails being run down. In the pneumatic system there is almost a perfect security from these causes of danger. From the engines being stationary, and the tunnel rising between the wheels of the trains, it is evidently impossible for the carriages to run off the road; and from the manner in which the system is worked, it is impossible that one train can run against another. It happens also that the nature of the rails themselves, forming, as they do, merely ledges upon the sides of the tunnel, prevent the possibility of persons standing between or upon them.

In railways worked by stationary engines, serious accidents have occasionally occurred by the ropes breaking, while the train has been ascending a slope. In such cases the train has run down by its weight with a frightful rapidity, producing the destruction of the carriages, and the loss of life. It is evident that this source of danger is removed by the pneumatic system.

An advantage possessed by this system above the edge railroad, deserves to be particularly noticed. In the edge railroad, the engines and carriages are kept upon the road by flanges, or ledges, raised upon the tires of the wheels, which press on the interior of the rails. Every thing which causes the carriages to press on the one side or the other, causes these flanges to rub against the rails. When a curve or bend happens in the road, the carrigaes are guided by the pressure of one or the other flange on the side of the rail, which of course is accompanied by considerable friction. In the pneumatic railway there are no flanges, either on the wheels or rails; the carriages are guided by wheels, or rollers, placed in a horizontal position, and acting upon the external sides of the channel which receives the valvular cord. By this means all resistance which arises from what is called rubbing friction, is removed, and every surface which moves upon another, moves upon it with a rolling motion.

It is well known, that notwithstanding the prosperous condition of the Manchester Railroad Company, yet their expenditure n locomotive power has been so enormous as to cause considerable anxiety on the part of the managers, and some of them have even inclined to the opinion, that the question of stationary power deserves to be reconsidered. This opinion would probably be confirmed and strengthened, if the practicability of the pneumatic system were satisfactorily demonstrated by experiment upon a sufficiently large scale.

On the whole, it appears to me that if the mechanical difficulties of maintaining the pneumatic tunnel sufficiently air tight be overcome, the system presents a fair prospect of being practically successful. These difficulties are not so great as they may at first appear. It should be recollected, that nothing approaching to the *exhaustion* of the tunnel can be necessary; nor even any considerable degree of rarefaction. Supposing the tunnel to have an internal diameter of 40 inches, the impelling diaphragm would have a surface of about 9 square feet. If in such a tunnel a degree of rarefaction were produced, sufficient to cause a barometric gauge to fall two inches, (which would be an extremely slight degree of rarefaction indeed,) an impelling force would be obtained amounting to one pound on every square inch of the surface of the diagram, which would give an impelling force of more than half a ton. It is calculated, that on the common railways the amount of load is above 200 times the force of traction, and it would therefore follow, that this force would be sufficient to draw a load of 100 tons. If an additional inch of mercury be made to fall in the barometric gauge to balance friction, &c. still the rarefaction would be extremely inconsiderable, and the contrivances to prevent leakage would appear to be attended with no great mechanical difficulty.

From the various reasons which I have above stated, I am of opinion that the present project would, if carred into execution, be likely to be attended with greater economy and safety than any other method of working railways now practised; and I see no reason against the attainment of as much speed as is obtained by the locomotive engines. At all events, having explained the reasons on which I have grounded this opinion, every one can judge to what weight it may be entitled. The project would appear to be well deserving of trial on some railroad of limited length, such as that between London bridge and Greenwich, where it would be sufficient to have stationary engines at the extremities. In such a case, I see scarcely any limit to the speed which might be attained with safety; and the economy, as compared with locomotive engines, would probably be very great.

DION. LARDNER.

London, Feb. 19, 1835.

[For the Railroad Journal.]

LOCOMOTIVE STEAM ENGINES.

The friends of the resolution for taking off the duties from locomotive steam engines, which was brought forward during the last session of Congress, urged in support of that measure the incompetency of the workshops of this country to supply the demand, and the inferiority of American locomotive engines.

It may be interesting to some of your readers to learn how little this argument is supported by the facts of the case. In a visit to the workshop of Mr. M. W. Baldwin, of Philadelphia, from which I have just returned, I collected the following information: Mr. B. has delivered from his workshop, within the last twelve months, ten locomotive steam engines, has six now in his shop in a state of great forwardness, some of which are nearly completed, and has contracts on hand for about twenty engines, for the following roads, viz.: the Columbia, Pa., State Road; the Trenton, the Newark, the Jamaica, the Troy and Saratoga, and the Utica and Schenectady roads. Under his present arrangements, he informed me that he gives employment to about 150 persons, and is able to complete an engine about every three weeks; and, to meet the increasing demand, is erecting workshops which will accommodate 300 hands.

As regards the character of these engines, there are seven of them at work on the Pennsylvania State road, upon which they have also two English engines, from the workshop of their most celebrated maker, R. Stephenson.

The engineer who has charge of the locomotive department on this road, informed me that the power of the American engines is about 95 per cent. greater than that of the English, and that the loss of time, and cost for repairs, is *altogether in favor of the American engines:* five hands, as he stated, having been sufficient to keep all the seven in order.

For the gratification of such of your readers as are interested in railroads, I will refer to the principal points of difference between the English and American engine, and what I conceive to be the peculiar advantages of the American engine.

It is well known, that the crank-shaft, and the wheels, of the locomotive engine, have been by far the most troublesome and expensive part of the machine to be kept in repair. By the improvements in Mr. B.'s engine, these difficulties have been obviated, as has been proved by experiment. Of the 7 engines on the state road, and 2 on the Trenton road, some have been at work since the 1st of July last, and in no instance has a crank broken, or worked loose, or any of his improved wheels failed, or given trouble.

It is here proper to observe, that the Pennsylvania road is almost a continued series of curves, ranging from 500 to 700 feet radius, and so severe is it upon the wheels of an engine, that one of the English engines, (the other having been out of repair most of the time,) has within 2 months used up or destroyed a part of the wheels of both engines, and is now using a set of Mr. Baldwin's wheels.

The other improvements affect the force-pump, eccentrics, and reverse gear, all of

which are so much simplified that the joints and working parts are not more than half as numerous as in the common English engine. The steam pipes have all ground metallic joints, and no cement or soft solder is used in any of the joints of the engine.

Another very important improvement has been added, by which the adhesion of the driving wheels may be increased at will, from 35 to 50 per cent. By this means, one of these engines, with only 6487 lbs. on her driving wheels, as a fixed weight, has carried a gross weight of 80 tons up an inclination nearly two miles in length, of 35 feet per mile ascent, without any perceptible slipping of the wheels.

The great object of the whole of these improvements has been to strengthen the weak points in the machine, and to simplify and reduce the number of its parts; and so fully has this object been accomplished, that this engine may justly be considered the most perfect of its kind now in use.

A FRIEND TO AMERICAN MANUFACTURES.

New-York, June 16, 1835.

The following gentlemen were elected Directors of the Long Island Railroad, on Tuesday last. It is a list of names, we need not say, which will insure the speedy construction of the road:

Knowles Taylor, Samuel Hicks, John Delafield, John L. Graham, Henry Wyckoff, Benjamin Curtis, Morgan L. Smith, George D. Strong, of New-York; William F. Blydenburgh, Joshua Fanning, William Sydney Smith, of Suffolk county; Clarence D. Sackett, of Kings county; and Valentine Hicks, of Queens county.

At a subsequent meeting of the Board of Directors the following officers were unanimously chosen:

Knowles Taylor, President; William F. Blydenburgh, Vice President; John Delafield, Treasurer and Register; Jon. L. Graham, Counsel and Attorney; and Clarence D. Sackett, Secretary.

RAILROAD TO QUEBEC.—The Board of Aldermen and the Common Council of the city of Portland, have passed in concurrence an order which provides for the appointment of an Agent to attend the survey of a contemplated route of the Railroad from Quebec to Portland, to procure the assistance of gentlemen of that city and elsewhere, who feel an interest in making the harbor Portland the point at which it shall terminate, to ascertain its practicability, the best route, and all interesting facts appertaining to the subject.

It is stated, upon what we presume to be good authority, that the receipts of the Camden and Amboy Railroad Company, were *ninety thousand dollars* in the month of March last! This month is by no means one of the best in the year for the business of transportation; and it would be safe, therefore, to assume that the receipts of that company will exceed a *million* this year!—[Fredonian.]

Extract of a Letter dated Chicago, June 5, 1835.

DEAR SIR—I arrived here, early in May, in good health—and on the 2d of June received the remainder of the boxes and packages forwarded from New York on the 20th of April—a part of them having arrived on the 25th May. This delay is owing, mainly, to the ice, which so long *blockaded* the port of Buffalo. Merchants here have not yet received all their goods—although those at *Peoria*, about one hundred miles from here, have had theirs, by the way of Philadelphia, six weeks. When our canal to Peoria shall be completed, we shall be able to receive all our goods from Philadelphia, through Pittsburgh, the Ohio and Illinois river and canal, earlier than by Lake Erie, unless there is some other channel than the New York canal.

On the Location of Railroad Curvatures; being an Investigation of all the Principal Formulas which are required for Field Operations, in laying Curves and Tangent Lines, to pass through Given Points. By J. S. VAN DE GRAAFF. [For the American Railroad Journal.]

[Continued from Number 22.]

26. Let the characters $\propto$, n, m, T, and T′, represent the same things as in the preceding article, and suppose the conditions with relation to the curves ADF, and BMR, to remain. Produce the two tangents FA′, and RB′, until they intersect each other; and take v, and v', to denote the number of chains in each respective tangent to their common point of intersection, and let z represent the angle of intersection. It is then proposed to investigate the general equations which subsist among those various quantities, in order that, when the circumstances in the field are such as to make any one of the quantities $\propto$, m, T′, v', or z, unknown, that quantity may then be eliminated, and its value obtained.

The first equation which will be required, in the investigation of any case where the *intersection* of two tangents is concerned, may be immediately deduced from (V.), and is expressed as follows:

$$2n\mathrm{T} - 2m\mathrm{T}' - z = 0 \quad \text{(XXXI.)}$$

And thus any one of the three quantities m, T′, or z, will be made known, when the *other two* are given, or assumed in such a manner as the situation of the ground may require. If, however, z be a quantity whose value is given, and fixed by particular circumstances in the field, then the value of T′ should generally be taken in such a manner as to give m an integer number, when eliminated from the equation $2n\mathrm{T} - 2m\mathrm{T}' - z = 0$.

The second subject of inquiry will now be an investigation of such equations as express the relations which exist between the quantities $\propto$, v, and v'. In the case here under consideration, it is evident from (XXIX.), that $\overline{\mathrm{X} + \propto - \mathrm{X}'}|^2 + \overline{\mathrm{Y} - \mathrm{Y}'}|^2 = 0$; and therefore, agreeably to the principles of algebra, $\mathrm{X} + \propto - \mathrm{X}' = 0$, and $\mathrm{Y} - \mathrm{Y}' = 0$; that is, $\propto + x + v \cdot \mathrm{Cos.}\, 2n\mathrm{T} - x' - v' \cdot \mathrm{Cos.}\, 2m\mathrm{T}' = 0$, and, $y + v \cdot \mathrm{Sin.}\, 2n\mathrm{T} - y' - v' \cdot \mathrm{Sin.}\, 2m\mathrm{T}' = 0$. From the last of these two equations, let the value of v' be obtained, and substituted in the first. The result is, $\propto \cdot \mathrm{Sin.}\, 2m\mathrm{T}' - v \cdot \mathrm{Sin.}\, z + \overline{x - x'} \cdot \mathrm{Sin.}\, 2m\mathrm{T}' - \overline{y - y'} \cdot \mathrm{Cos.}\, 2m\mathrm{T}' = 0$; and in like manner, $\propto \cdot \mathrm{Sin.}\, 2n\mathrm{T} - v' \cdot \mathrm{Sin.}\, z + \overline{x - x'} \cdot \mathrm{Sin.}\, 2n\mathrm{T} - \overline{y - y'} \cdot \mathrm{Cos.}\, 2n\mathrm{T} = 0$. But by (VII.), $x - x' = \frac{\mathrm{Sin.}\, 2n\mathrm{T}}{2\,\mathrm{Sin.}\, \mathrm{T}} - \frac{\mathrm{Sin.}\, 2m\mathrm{T}'}{2\,\mathrm{Sin.}\, \mathrm{T}'}$, and, $y - y' = \frac{1 - \mathrm{Cos.}\, 2n\mathrm{T}}{2\,\mathrm{Sin.}\, \mathrm{T}} - \frac{1 - \mathrm{Cos.}\, 2m\mathrm{T}'}{2\,\mathrm{Sin.}\, \mathrm{T}'}$; which values being substituted in the last equations, and the obvious reductions made, the two following equations will result:

$$\propto \cdot \mathrm{Sin.}\, 2m\mathrm{T}' - v \cdot \mathrm{Sin.}\, z + \frac{\mathrm{Cos.}\, z - \mathrm{Cos.}\, 2m\mathrm{T}'}{2\,\mathrm{Sin.}\, \mathrm{T}} - \frac{1 - \mathrm{Cos.}\, 2m\mathrm{T}'}{2\,\mathrm{Sin.}\, \mathrm{T}'} = 0;$$

$$\propto \cdot \mathrm{Sin.}\, 2n\mathrm{T} - v' \cdot \mathrm{Sin.}\, z - \frac{\mathrm{Cos.}\, z - \mathrm{Cos.}\, 2n\mathrm{T}}{2\,\mathrm{Sin.}\, \mathrm{T}'} + \frac{1 - \mathrm{Cos.}\, 2n\mathrm{T}}{2\,\mathrm{Sin.}\, \mathrm{T}} = 0. \quad \text{(XXXII.)}$$

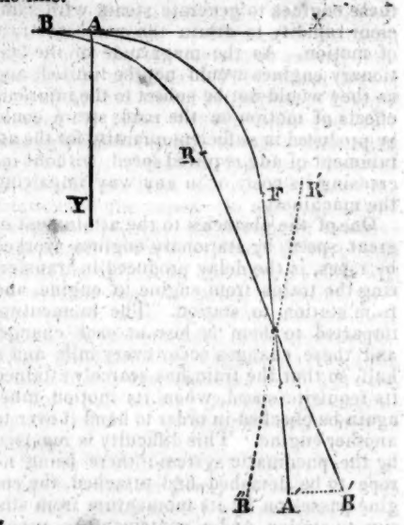
Such is the second system of equations which will be required in the field.* The following cases may be given to illustrate their application:

Case I. When v, z, and T′, are *given*, to find $\propto$.

Here, by an evident transposition of the first of the equations (XXXII.), the following formula is obtained:

$$\propto = \frac{v \cdot \mathrm{Sin.}\, z + \frac{1 - \mathrm{Cos.}\, 2m\mathrm{T}'}{2\,\mathrm{Sin.}\, \mathrm{T}'} - \frac{\mathrm{Cos.}\, z - \mathrm{Cos.}\, 2m\mathrm{T}'}{2\,\mathrm{Sin.}\, \mathrm{T}}}{\mathrm{Sin.}\, 2m\mathrm{T}'} \quad \text{(XXXIII.)}$$

And the quantity $\propto$ thus becomes known; for the value of m may be obtained from (XXXI.). In every instance in which this case will occur in practice, such a value may be selected for T′, as will give m an integer number, without doing any injury to the line.



Example 1. Let AX be a given tangent line, and A a given point therein, selected for the origin of a curve. By means of a system of rectangular lines, traced from the origin A, and parallel to the axes AX, AY, let a certain point F be designated, as the situation of the ground may seem to require, and in such manner as to coincide with the extremity of the 25th chain of a curve AF, whose modulus of curvature is 1° 30′, agreeably to the method explained, art. 17. From the point F, let a tangent FA′ be traced 60 chains, agreeably to the principles given in art. 16; and from the point A′ trace the rectangular ordinate A′ B′, 2·5 chains, to a point B′, selected in consequence of the particular situation of the ground. Now, suppose S to be a point in the tangent line FA′, 30 chains from F, through which the peculiar situation of the ground renders it desirable that a new tangent RSB′ should be laid. It is then proposed to determine the position of such a point B, in the primitive tangent AX, as will be the proper origin of a new curve BR, passing into the proposed tangent line RSB′.

It is here supposed, as the figure indicates, that the line RSB′ has an inclination, less than the line FSA′ to the common tangent AX; and consequently, in this instance, the angle z will be *positive*, and expressed by the angle A′ S B′. By plane trigonometry, $\mathrm{Tan.}\, z = \frac{\mathrm{A'\,B'}}{\mathrm{A'\,S}} = \frac{2{\cdot}5}{30} = {\cdot}08333$; or, $z = 4° 46′$. Hence, by (XXXI.), $2m\mathrm{T}' = 2n\mathrm{T} - z = 75° - 4° 46′ = 70° 14′$; or, $m\mathrm{T}' = 35° 7′$. Now, the values of the quantities m and T′ may be taken in any arbitrary manner, provided the equation $m\mathrm{T}' = 35° 7′$ be satisfied. The peculiar situation of the ground, between the points A and F,

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* In order to avoid misapprehension and error, particular attention must be paid to the *sign* of the angle z, which, in all cases where $2m\mathrm{T}'$ exceeds $2n\mathrm{T}$, is to be made negative; or, the angle z is to be accounted negative, when the tangent v' is *more* inclined than v, to the common tangent at the origins.

must therefore *decide* the values of m, and T′. The object should be to make the new curve BR as *long* as the *limits of expense* will allow; for in the same proportion as that curve is made longer, it will also be made of less abrupt curvature; but it will then diverge farther to the right of the first curve AF. Let it be supposed that the new curve BR may have a length of 20 chains; then, $T' = \frac{35° 7'}{20} = 1° 45\frac{1}{3}'$, which will therefore be the modulus of curvature of the new curve BR. And now, to find the necessary position of the origin B, we have, by (XXXIII.),

$$\propto = 30 \times \text{Sin. } 4° 46' + \frac{1 - \text{Cos. } 70° 14'}{2 \text{ Sin. } 1° 45\frac{1}{3}'} - \frac{\text{Cos. } 4° 40' - \text{Cos. } 70° 14'}{2 \text{ Sin. } 1° 30'}}{\text{Sin. } 70° 14'}$$

That is, $\propto =$

$$\frac{30 \times \cdot 08310 + \frac{\cdot 66181}{\cdot 06128} - \frac{\cdot 99654 - \cdot 33819}{\cdot 05236}}{\cdot 94108} =$$

$$\frac{2 \cdot 493 + 10 \cdot 800 - 12 \cdot 573}{\cdot 941} + \frac{\cdot 720}{\cdot 941} = -\cdot 765.$$

Hence, measure the distance AB = ·765 of a chain, *back* upon the tangent line AX, and the required *origin* of the new curve BR will be obtained.

Example 2. Suppose the same data to remain as in the preceding instance, with the exception only that the position of the required new tangent R′ S B″, is reversed; that is, let the line R′ S B″ have an inclination exceeding that of the line FSA′, to the common tangent AX.

Here the angle z becomes *negative*, and therefore, by (XXXI.), $2mT' = 2nT - z = 75° + 4° 46' = 79° 46'$; or, $mT' = 39° 53'$. And hence, if it be supposed that the ground between the points A and F be such as to admit a new curve 40 chains in length, then $T' = \frac{39° 53'}{40} = 0° 59\frac{1}{4}' =$ modulus of curvature of the new curve. Now, recollecting that Sin. z becomes *negative*, and Cos. z remains *positive*, we have

$$\propto = -30 \times \text{Sin. } 4° 46' + \frac{1 - \text{Cos. } 79° 46'}{2 \text{ Sin. } 59\frac{1}{4}'} - \frac{\text{Cos. } 4° 46' - \text{Cos. } 79° 46'}{2 \text{ Sin. } 1° 30'}}{\text{Sin. } 79° 46'} =$$

$$\frac{-2 \cdot 493 + \frac{\cdot 82234}{\cdot 03480} - \frac{\cdot 99654 - \cdot 17766}{\cdot 05236}}{\cdot 98409} =$$

$$\frac{-2 \cdot 493 + 23 \cdot 630 - 15 \cdot 637}{\cdot 98409} = \frac{+5 \cdot 500}{\cdot 984} =$$

5·59. Hence, the new origin is 5·59 chains, *back* upon the tangent line AX; and consequently, in this instance, the new *curve* will *intersect* the first curve AF.

Case II. When $\propto$, v, and z, are given; to find T′.

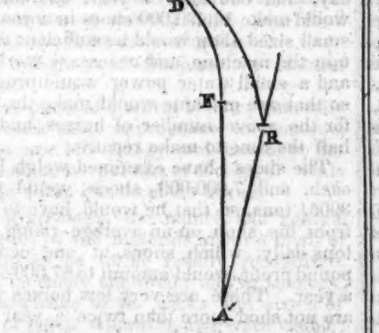
Let the quantity $2mT'$ be represented by D; and the following expression will be immediately derived from (XXXI.):

$$D = 2nT - z \qquad \text{(XXXIV.)}$$

The value of D will be thus made known; and by an obvious transposition of the first equation (XXXII.), the following formula will then obtain:

$$\text{Sin. } T' = \frac{1 - \text{Cos. } D}{2 \propto \cdot \text{Sin. } D - 2v \cdot \text{Sin. } z + \frac{\text{Cos. } z - \text{Cos. } D}{\text{Sin. } T}}. \qquad \text{(XXXV.)}$$

Having computed the value of T′, the quantity m, which denotes the number of chains contained in the new curve, will be made known by the formula, $m = \frac{D}{2T'}$. This will, however, be accurately true, only when m is an *integer* number, for reasons already explained in art. 5; but the formula (XXXV.) is, nevertheless, obviously rigorous. When the formula $\frac{D}{2T'}$ does not express an *integer* number, it will be, most generally, convenient in practice to take for the value of m the nearest integer number *greater* than $\frac{D}{2T'}$; and then, after tracing every chain in the new curve *except the last*, let that last chain be laid from a modulus of curvature expressed by the formula, $\frac{1}{2} D - T' \times m - 1$; which will restore the proper *direction* to the new tangent, agreeably to principles evident enough from (IV.), and it will not vary, laterally, any material distance from the required position.



Example. Let CADF be a curve whose modulus of curvature is 1° 30′; and let A be a station in that curve, 25 chains from the extreme station F. From F, suppose a tangent FA′ to be laid 30 chains to a point A′. It is then proposed to determine the necessary change of curvature at the station A, in order to trace a new curve AR, such as to pass into a new proposed tangent RA′, intersecting the former at the point A′, and whose inclination to the common tangent at the station A, *exceeds* that of the tangent FA, by 4° 46′.

Here, $T = 1° 30'$, $n = 25$, $v = 30$, $\propto = 0$, and $z = -4° 46'$; therefore by (XXXIV.), $D = 2nT - z = 75° + 4° 46' = 79° 46'$. Hence, by (XXXV.), Sin. T′ =

$$\frac{\cdot 82234}{+ 60 \times \cdot 08310 + \frac{\cdot 99654 - \cdot 17766}{\cdot 02618}} = \frac{\cdot 82234}{4 \cdot 986 + 31 \cdot 278} = \frac{\cdot 82234}{36 \cdot 264}$$

$= \cdot 02267$; or, $T' = 1° 18' =$ modulus of curvature necessary to trace the required curve AR, agreeably to the principles explained in art. 9. Now, in this instance, $\frac{D}{2T'} = \frac{79° 46'}{2° 36'} = \frac{79 \cdot 767°}{2 \cdot 6°} = 30 \cdot 68$; which is not an *integer* number, and the new curve AR must therefore be made to consist of 31 chains, of which the first 30 will be laid agreeably to the modulus of curvature, 1° 18′. And then, $\frac{1}{2} D - T' \times m - 1 = 39° 53' - 1° 18' \times 31 - 1 = 39° 53' - 39° 0' = 0° 53' =$ necessary modulus of curvature for the 31st chain.

A laughable incident occurred on the Paterson Railroad on Monday last. While crossing the long causeway, the passengers in the two cars, were startled by loud shouting from the top of the vehicles. Heads were instantly protruded from all the openings, when it was discovered that the passenger cars had been detached from the locomotive and baggage cars, by the breaking of the iron pin with which they had been secured together. The locomotive proceeded nearly three quarters of a mile, before the engineer discovered that he had left his freight in the lurch. So great was the impetus, that the cars did not stop till they had come up with the locomotive.—[Jersey City Gazette.]

[*From the Philadelphia Commercial Herald.*]

NEW RAILROADS.—The following Railroads are now in progress, or shortly will be, in this State, viz:

1. Lancaster, Middletown, and Harrisburg railroad.
2. Marietta Branch railway, forming a connection with the Columbia and Philadelphia railway, at the depot near Columbia.
5. Strasburg Branch Railroad, extending from Strasburg, in Lancaster county, to the Columbia and Philadelphia railroad.
4. York and Wrightsville Railroad. When this road is completed, there will be a continuous line connecting the city of Washington, through Baltimore, York, Wrightsville, Columbia and Lancaster, with the city of Philadelphia.
5. Cumberland Valley Railroad. When this road is completed, there will be a continuous railway from Chambersburg to Philadelphia via Shippensburg, Carlisle, Harrisburg, Middletown and Lancaster.
6. Wilmington and Susquehanna Railroad.
7. Williamsport and Elmira Railroad, from Williamsport, Lycoming county, to Elmira, in New York 74 miles, to intersect with the New York and Erie railroad.
8. Oxford Railroad, from the Philadelphia and Columbia Railroad, near Coatesville, to Port Deposit on the Susquehanna, thirty-one and a quarter miles.
9. Little Schuylkill and Susquehanna Railroad, from Pottsville and Danville Railroad to the Susquehanna at Catawissa.
10. Lyken's Valley Railroad, from the Susquehanna, near Millersburg, 26 miles above Harrisburg, to the anthracite coal region, 16 miles east.
11. The Valley Railroad from Norristown, to intersect with the Philadelphia Columbia Railroad about 28 miles west of Philadelphia.
12. The Allentown Railroad, from Allentown, Lehigh county, to Norristown.
13. Philadelphia and Norristown Railroad.
14. Philadelphia and Reading Railroad.
15. West Philadelphia Railroad—a branch of the Philadelphia and Columbia Railroad, to enter the city near Market street bridge, 8 or 9 miles in length.

The Cleveland (Ohio) Daily Herald mentions the arrival at that port of the steamboat Thomas Jefferson, with two hundred passengers, on an excursion to the upper lakes.

The same paper says—"Last evening, there were about twenty vessels, sloops and schooners, lying in our harbor. The schr. Henry Norton, Capt. Oliver, 150 tons burthen, cleared for Buffalo, on Saturday evening, from the warehouse of Messrs Kelly & Co. having on board besides a quantity of hams, sixteen hundred bushels of wheat, and *one thousand* barrels of flour."

Liverpool and Manchester Railroad stock sold on the 13th May at 193*l.* per share for the 100*l.*

PRICES OF RAILROAD STOCKS,
At the New-York Stock and Exchange Board,
JUNE 19, 1835.

	Par.	Ask.	Offer.
Mohawk and Hudson	100	119¼	119¼
Paterson	50	108	108
Ithaca and Owego	—	—	—
Saratoga	—	121½	121
Harlaem	—	115	114
New-York and Albany	—	—	—
Boston and Providence	100	—	—
New-Jersey Railroad and Transportation Line	100	116¼	115¼
Camden and Amboy	100	—	—
Providence and Stonington	100	100	99½
Boston and Worcester	—	106¾	106½
Philadelphia and Trenton	100	98½	97
Utica and Schenectady	100	125½	125
Jamaica	—	—	—
Saratoga and Washington	—	—	—
Hudson and Berkshire	100	103	102½
Long Island	100	101½	101½
Saratoga and Whitehall	100	109	108

CANAL TOLLS.—There has been received for tolls on the state canals during the months of April and May, the sum of $353,734, 67, viz

For 16 days in April,	$130,075 01
For 31 days in May,	223,659 66
	$353,734 67

This is $28,965 85 more than was collected for the same months in 1833, when the tolls on merchandize were 25 per cent. higher than at present: And it exceeds the collections for April and May, 1834, by the sum of $53,048 59.—[Argus.]

[From the Apprentice's Companion.]

MR. BURDEN AGAIN.

Among all the classes of people who constitute the human family, there is no other class who are so useful to the whole, and so poorly paid for it—who are so completely the sport of fortune's unfeeling frolics—so often dieted on hope, to increase the bitterness of disappointment—as the inventors of useful improvements. To a person who is capable of duly appreciating the services of those people, it is therefore peculiarly pleasing to meet with one of them who is proof against the game which fortune would otherwise play upon him, who will not submit, like a silkworm, to spin his cocoon for the benefit of posterity, and die in obscurity, or be scalded to death, but who, when sunk into the yawning gulf of disappointment, will rise triumphant upon the next billow, and laugh at the effects of fate to depress him.

Such were my feelings on being shown a number of horse shoes said to be made by the above named gentleman, by the help of a machine which he had invented. The shoes were very perfect, and I was told his machine would produce forty a minute. I had watched that gentleman's operations with no small interest as an unobserved spectator, while he was rapidly acquiring property by his machinery for making spikes. When, by means of his own mental and bodily exertions, and with his own money, he engaged in his plan of a steamboat, I had strong hopes of his success, but they were not unmixed with fears. But when those fears were nearly dispelled by his prospect of success, when fortune appeared to have acknowledged his demand, and to be actually loosening her purse-strings to reward him,—at that exquisite moment, when his hopes were changing to exultation, but when at one rude crash his labors and his hopes were sunk together, and no visible object intervened to save him from despair and oblivion, I can truly say, that my feelings were more excited than they had ever been by any circumstance in which I had no interest, not even then of a friendly personal acquaintance.

No person will wonder then that when I saw the horse shoes, and learnt their history, I felt a strong desire to see their birthplace, and examine for myself not only the truth of what had been told me, but the *modus operandi* by which the effect was produced.

Accordingly I visited the place a few days since, and though I presented no credentials, I found no want of kind civility, and the result paid me most amply for time and travel. The machine was not yet completed, and consequently not in operation. The shoe in the process goes through three distinct operations, but following in as quick succession as the eye can trace. The first operation requires about twice the time of the others, and is of course to have a duplicate of that part of the apparatus to make it keep pace with the other two parts, and lose no time. It is at present merely set up for trial, and attached to the power of the water-wheel which drives his spike machinery, and which has no power to spare. A wheel to propel the horse shoe apparatus will be completed in a few days, and in four weeks the establishment will be in full operation. A bar of iron was heated and put in to show me the operation, which whole bar was converted into horse shoes in a little more than one second each. The last shoe came out apparently as hot as the bar went in, and when the part which is to double the first operation is completed, it will make at least 80 shoes per minute. And yet every part of the machine appears to be almost as simple, and quite as little liable to disorder, as a common grindstone; and what appears quite remarkable, it is only a different modification of the machine he has long had in use in making spikes.

If we allow one man to every eight persons in the United States, and one half of these to have a horse apiece, there would be 875,000 horses, which is probably far within the truth. To shoe these horses all round, twice a year, would require 7,000,000 shoes. Allowing his machine to make 80 shoes a minute, and to work ten hours in a day, and 300 days a year, one machine would make 14,400,000 shoes in a year. A small sized shop would be sufficient to contain the machine and necessary workmen, and a small water power would propel it; so that one machine would make the shoes for the above number of horses, and have half the time to make repairs.

The shoes I have examined weigh 1¼ lbs. each, and 7,000,000 shoes would weigh 3906¼ tons, so that he would have to send from his shop on an average rising of 13 tons daily, which shoes, at one cent per pound profit, would amount to 87,500 dollars a year. There are very few horses which are not shod more than twice a year; and no man can live by making horse shoes, and finding his shop, tools, and coal, at *two* cents a pound. I see nothing to hinder Mr. B. from realizing the amount here calculated, and I should rejoice to see it doubled.

He has still some prospects with respect to his boat, and he is engaged in a series of experiments to decide the point which has so long and so completely baffled all calculation—the quantity of *friction* produced by smooth surfaces passing through water; and the plan he adopts to effect it is, I should say, infinitely more demonstrative than any other I have seen.

He who would not wish success to such a man, I would not chose for a neigubor.

ARCHIMEDES.

NATURAL SCIENCE IN COMMON SCHOOLS.

Essay on the Introduction of the Natural Sciences into Common Schools. Read at the Meeting of the American Lyceum, in May, 1833. By Professor Dewey, of Pittsfield.

As the subject of the following Essay was expressed in general terms by the Executive Committee of the Lyceum, the writer felt himself authorized to discourse upon it in the various aspects in which it presented itself to his mind. He may have entered more fully into the examination of the subject than the Committee expected; and he may have failed to treat upon some part of the subject which they had contemplated. As it is, the essay is presented before them. The thoughts will be arranged under several distinct heads.

I. Object and General View of the Natural Sciences.

The design of Natural History is the description of all the natural productions to which man has access. Its subjects are as numerous and diversified as are the objects in the atmosphere, in the waters, and on and within the earth itself. The science carries the student into an examination of this extensive department of the works of the Divine Being.

A general and particular classification of natural objects is indispensable to the description of them. The first great and general division is into the three kingdoms, *mineral*, *vegetable*, and *animal*, which comprehend all the objects belonging to our globe.

The Natural History of the *mineral* kingdom comprehends the great subject of *Mineralogy* and *Geology*. Mineralogy classifies and describes all the earths, clays, ores, coals, stones, salts, gases, acids, waters, &c., which are natural productions, and which possess one homogeneous nature, or exhibit homogeneous properties. Geology performs the same task with the rocks or masses compounded of the preceding minerals, lying in extensive strata over the globe, and the strata of earth and clay, and examines the general structure and formation of the crust of the earth, and those changes which have taken place in the materials of which the earth is composed.

For the complete description of these objects, the science of *Chemistry* is essential; for no description will approximate completeness, which does not include the knowledge of the *elementary* substances and their properties, of their combinations and actions, and of the qualities of the compounds. Chemistry, extensive as it is in all its applications, is, in truth, only a subordinate part of the science of Natural History.

Geography, also, so far as it is a description of natural objects and exhibits the character of the surface of the earth, its rocks, mountains, volcanoes, petrifactions, waters, earths, soils, productions, native or cultivated, is entirely subservient to the great object of Natural History.

Thus far the naturalist contemplates only matter destitute of organization, and operated upon by those unknown and yet well known powers, gravitation, cohesion, and magnetic or electric or chemical agencies. In the other two kingdoms, *organized* objects are described, exhibiting that well known principle, that mysterious influence, that mode of divine operation, which we familiarly call life.

The *vegetable* kingdom comprehends every plant, as herb, tree, grass, ferns, seaweed, &c., as well as the lichens and fungi, those often minute and shapeless objects, fastened to rocks and trees, or buried in the earth, or just projecting their heads above its surface. Plants cover the earth and rocks, and throng the waters, from the equator to the highest latitude yet attained by suffering industry. To him, who has thought of the vegetable world, chiefly in the 'cedar of Lebanon,' or the lofty pine or oak of the forests, or in the general dress of green that decks the country, or in the blushing carnations that adorn our gardens and pastures, or waste their beauty and fragrance on 'the desert air,' the vegetable kingdom is yet an unknown world; and he is a stranger to the delight with which the *naturalist* searches out the history of a plant too insignificant perhaps to arrest *common* attention for an instant. All this world of vegetable life and wonder it is the province of the *botanist* to explore, and to pour into the treasures of Natural History the descriptions of the riches he has procured from these varied and wonderful works of the great Creator.

Botany describes and arranges the whole

kingdom of plants. The method, whether on what is technically called the *artificial*, or the *natural* system, is admirable. A great general division of plants is first made, comprising, in one body, those whose organs, employed in the production of fruit or seed, are *visible*, and in the other body, those whose like organs are wholly invisible, or seen only by high magnifying power. The *latter* division of plants, of which there is a vast multitude, but which present few attractions to most minds, may be passed with only this general consideration; while the *former* division, which contains the common, and most useful, and ornamental plants, is open to the examination of any mind. The division of plants into *Classes*, *Orders*, *Genera*, and *Species*, or into *Natural Families* and *Orders*, renders the prosecution of any part of Botany a matter of comparative ease. Connected, as this may be, with the *facts* of their *economical* use, as food for man or beast, as employed in the great variety of arts and manufactures, as medicine, or as mere ornament, and thus supporting rational life, or promoting the convenience and restoring the health of man, or of multiplying the sources of rational enjoyment, and of developing more perfectly the powers and beauty of the human frame, even a partial knowledge of the vegetable kingdom must be deeply interesting to all who can acquire it.

The *animal kingdom* is the last and highest of the three grand divisions of natural objects. The organization is more complex and wonderful, and the life itself of higher character. Although it has not been thought easy, in every instance, to point out the difference between a vegetable and an animal, it will be sufficient to consider *voluntary motion* as the characteristic of the animal kingdom. Even in the lowest grade of shell-fish, confined to a rock, we see indications of the same *voluntary* power.

Zoology is the arrangement and description of animals. The divisions are very logical, and the system very complete. If we consider it only in relation to beasts, birds, fishes, &c., a selection of objects of knowledge is very easy.

To excite our attention, however, to the multitude of objects in the animal kingdom, I shall merely mention some of the divisions in zoology: *Crustaceology*, the science of shell-fish, as crabs, lobsters, centipedes; *Conchology*, of shells, as the clam, oyster, snail, &c.; *Entomology*, of insects properly so called, bugs, flies, bees, &c.; *Herpetology*, of oviparous quadrupeds, crocodiles, turtles, lizards, frogs, &c.; *Ophiology*, of snakes and serpents; *Ichthyology*, of fishes; *Cetology*, of whales, dolphins, &c., which produce their young alive, and support them by milk; *Ornithology*, of birds; *Mazology*, of quadrupeds producing living young and suckling them.

II. Reasons for the preceding general view.

I have considered the objects of Natural History thus particularly for several reasons.

1. That the magnitude of the subject, in all its parts, may come up before us, and convince us that only a small part of it can be introduced into common schools.

2. That our attention may be directed to those portions of it which are the most accessible, and have most facilities already prepared.

3. To show the Lyceum that it is not without some plausibility, that many a zealous cultivator of some branch of Natural History considers the project of introducing this study into common schools as little less than a satire upon wisdom, and a burlesque upon knowledge. The finest minds have employed the leisure hours of their lives, and others of most splendid talents have consumed all their days upon the study of only a small part of Natural History, and before them rises, not the mere image, but the living reality of the schoolboy, who will not be able to learn more than the rudiments of common education, engaged in this vast study. The prospect is sickening to their souls.

I hope, however, to show that the magnitude and difficulty in attaining a knowledge of it is not opposed to the accomplishment of all that is intended in the common schools. The full and scientific study of the subject would be absurd.

4. That he is a public benefactor, who leads the minds of youth to any interesting knowledge of any of the multiplied works of the Creator, or surrounds them with facilities for becoming better acquainted with these works. The honor now resting upon many who have labored in this cause, will continue to reward those who shall labor for the same great object.

III. Selection of Subjects in Natural Science.

Those parts of Natural History generally considered most appropriate to common schools are Mineralogy and Geology, Botany, and some portion of Zoology. Only parts of these can be made use of.

In *Mineralogy*, the names and general properties of the minerals about a town or district, so as to be readily recognized, might be easily acquired; and in Geology, the knowledge of the rocks and strata of rocks or earth, wherever any were visible: also, the general uses of these substances in the arts. This has already been proved by experiment in several schools in Massachusetts; and minerals have been sent to other schools, by way of exchange.

In *Chemistry*, a large number of experiments of the simpler kind might be performed by means of simple and common articles. A little expense would enable a teacher to exhibit some of the gases, and some of the more striking experiments. I have known boys of ten years of age, in my school, form the illuminating gas by a means of a tobacco pipe and some oily seed, as that of the butternut or sunflower, cemented in the bowl by clay, and have seen them delighted with the bright flame produced by its combustion at the end of the stem.

In *Botany*, the parts of plants employed in the descriptions, as the several parts of the flowers and leaves, and the arrangement of plants, as well as the names of many genera and species, might be learned. I knew a lad of eleven years, who, by collecting plants with a botanist two summers, learned the names of four hundred species, and was able to distinguish many more, whose names were not familiar to him, as well as to analyze flowers to a considerable extent.

In *Zoology*, some of the parts of Entomology would be most easy, as insects are so abundant, and many of their changes are so easily detected; of Herpetology, in relation to tortoises, lizards, &c.; of Conchology, in respect to land and fresh water shells in the country, and collection of shells along the shores of the ocean. Of birds and quadrupeds, the means of knowledge are increasing continually. The collection of specimens would be a healthy exercise, and exert a favorable influence over body and mind, while curiosity would be exerted and gratified.

IV. Advantages of Natural Science in Education.

Besides the value of the knowledge itself, there are indirect advantages attending the study of Natural History, some of which I shall briefly state.

1. This study calls into efficient action the power of discrimination. The constant tendency of the mind is to consider things in the mass. Particularity requires attention, care, direct effort of the mind. Not a step can be taken in Natural History without discrimination. We must *begin* with particulars, and we must *go on* with *particulars*. And we must often begin with a very small part of one particular thing. The mind is trained to minuteness of examination, and to the improvement of its power of seeing and making distinctions. Thence the mind proceeds to generalization. The *inductive* philosophy is the glory of modern times. It begins with particulars, and ascends to general conclusions.

2. The relation of one part to another of an object must be observed. The process of examination is fitted to induce the habit of attending to the relations of things, and of creating the power to consider the relations of things in all cases.

3. It leads to the adoption of system, arrangement, method, classification. Consider the multitude of facts in Chemistry, insulated and independent, until they were reduced to systematic order by some of the master spirits of modern times. In Botany, the wonderful genius of Linne brought into order the heterogeneous mass of its materials. This system, order, arrangement, is now a part of the subject itself, and the study cannot be prosecuted without this part of logic being practically enforced upon the mind.

4. It awakens curiosity and opens the eyes to look with interest upon the works of God. It rouses the faculties from that listlessness, to which there is so strong a tendency in the naturally *indolent* state of mankind, and yields to the mind that gratification so desirable to be obtained from the very exercise of the powers.

5. It stores the mind with objects of thought and interest, and prepares it to increase their number. These objects, too, can attend us in all our excursions. The naturalist is ever surrounded with those objects which have roused a deep interest in his mind. Cicero's splendid panegyric on Literature is equally applicable to Natural History.

6. Though many of the subjects have less apparent contrivance, and design, and adaptation, than some others, yet these become more evident, as the knowledge is increased, and are finally seen on every side. The mind becomes more familiar with the works of the great Architect, and perceives more of the benevolence and wisdom of our heavenly Parent, if the study is conducted in the proper manner.

Hence these studies exert a peculiar influence on the character of the young. The curiosity excited, and the objects presented continually on every side, offering employment for the mind, and exercise for the body, might naturally lead to important intellectual and moral results. I am aware that this advantage is not the most obvious, and I shall only confirm its truth by a mere allusion to several instances of young men, who have, by an attention to Natural Science, been arrested in their mad career to intellectual and moral ruin. Some of these cases are known also to some members of the Lyceum.

Some part of these *indirect* advantages must attend any considerable attention to this study, and be enjoyed in no small degree by the young.

AGRICULTURE, &c.

[From Transactions of the Essex Agricultural Society.]

ON COLORING.

The art of fixing on cloths beautiful colors, although not one of the most necessary, has been made by the fashions, taste, and pride of men, in all ages and nations, one of the most valued of inventions. It is altogether a chemical art. Its theory is now well understood, and is in a high degree interesting to every studious mind, useful to all engaged in manufacturing, or in buying, selling, or consuming colored fabrics. It is, therefore, worthy the attention of all our readers.

Colors, to be permanent, must be combined with the fibres of the silk, wool, cotton, or linen, of which the cloth is composed. To understand how this can be effected, we must acquaint ourselves with the laws of chemical affinity. Affinity is nothing more than the disposition or tendency which two or more substances have to unite and form a new compound, differing greatly in some of its qualities from the simple substances of which it is composed; one substance is therefore said to have an affinity for another when, on being brought in contact, it unites with and assumes new appearances and qualities. For example, if iron and sulphuric acid (oil of vitriol) be brought together, they gradually unite and form sulphate of iron (green vitriol or copperas), but the sulphuric acid has a stronger affinity for lime than it has for iron; if, therefore, lime be brought into contact with sulphate of iron, the sulphuric acid quits the iron, seizes on the lime, and forms sulphate of lime (plaster of Paris.) Substances used in dyeing possess an affinity for the fibres of the cloth, and when dissolved in water or some other liquid, and brought into contact, they unite, and change either the color of the fibres, or so change their qualities, as to dispose them to unite with other coloring matter for which before they had no affinity.

The art of dyeing, then, consists in combining a certain coloring matter with the fibres of the cloth. This process cannot be well performed unless the dye-stuff be dissolved in some liquid, and the particles so separated that their attraction for each other becomes weaker than the attraction for them exerted by the cloth. When the cloth is dipped into this solution, it attracts the coloring matter, and from its stronger affinity takes it from the solvent and fixes it upon itself. The facility with which cloth imbibes a dye, depends on two circumstances, namely, the affinity between the cloth and the dye-stuff, and the affinity between the dye-stuff and its solvent. It is of importance to preserve a due proportion between these two affinities, as upon that proportion much of the accuracy of dyeing depends. If the affinity between the coloring matter and the cloth be too great, compared with the affinity between the coloring matter and the solvent, the cloth will take the dye too rapidly, and it will be scarcely possible to prevent its color from being unequal. On the other hand, if the affinity between the coloring matter and the solvent be too great, compared with that between the coloring matter and the cloth, it will either not take the color at all, or take it very faintly. Wool has the strongest affinity for most coloring matter, silk the next strongest, cotton a much weaker affinity, and linen the weakest of all. In order, therefore, to dye cotton or linen, the dye-stuff should, in many cases, be dissolved in a liquid for which it has a weaker affinity than for the solvent employed in dyeing wool or silk. Thus we may use iron dissolved in sulphuric acid to dye wool, but for cotton and linen it is better dissolved in vinegar. Was it possible to obtain a sufficient variety of coloring matters having a strong affinity for cloth, the art of dyeing would be exceedingly simple and easy. But this is by no means the case; if we except indigo, the dyer is scarcely possessed of a dye-stuff which yields of itself a good color, sufficiently permanent to deserve the name of a dye. To obviate this difficulty, some substance must be employed which has a strong affinity both for the cloth and the coloring matter. Substances employed for this purpose are called mordants. Those chiefly used are earth, or metals, in the form of salts or in solution, tan, and oil. One of the most frequently used is *alum*. This salt is composed of pure clay (alumina) dissolved in sulphuric acid. Into a solution of alum the cloth is dipped, the fibre of the cloth having a stronger affinity for the clay than the sulphuric acid has, unites permanently with it. It is then taken out, washed and dried, and will be found a good deal heavier than before, although the color remains the same, the clay, which now forms a part of it, being perfectly white. The cloth may now be dyeed by dipping it in a solution of any coloring matter for which the clay has a strong affinity. The clay and coloring matter may be united previous to the immersion of the cloth, and the fibres will still unite themselves with the compound, but not so equally and permanently as when dipped into each of the solutions separately. But the sulphuric acid has rather too strong an affinity for the clay to yield it readily even to wool. Most dyers, therefore, add to the solution of alum a quantity of tartar. Tartar is composed of potash and an acid found in grapes and some other vegetables, called tartaric acid. When solutions of alum and tartar are mixed, the sulphuric acid quits the clay and seizes on the potash, dislodging at the same time the tartaric acid, which seizes in turn on the clay just abandoned by the sulphuric acid. The tartaric acid, having a weaker affinity for the clay than the sulphuric acid possesses, yields it more readily to the cloth. Another purpose is also gained: the sulphuric acid remains combined with the potash, and this corrosive substance is thereby prevented from injuring the texture of the cloth. For cotton and linen, which have a weaker affinity to clay than wool or silk, another process becomes necessary. Lead or lime dissolved in acetic acid (vinegar) is poured into the solution of alum. A solution of sugar of lead is frequently used. The sulphuric acid quits the clay and seizes on the lead or lime, both of which, united with this acid, form insoluble powders, which fall to the bottom, and the acetic acid unites with the clay, for which it possesses only a weak affinity, and readily yields it to the cotton or linen immersed in it.

Metallic salts may also be used as mordants. Those of iron and tin are extensively used in dyeing. Iron is used as a mordant in two states, in that of sulphate of iron, (copperas,) or acetate of iron, that is, iron dissolved in vinegar or in the acid obtained by distilling wood (pyrolygneous acid.)

Tin is used as a mordant in three states—dissolved in nitro-muriatic acid, (a mixture of the acids obtained from saltpetre and from common salt,) in acetous acid, and in a mixture of sulphuric and muriatic acids. The nitro-muriate of tin is the common mordant employed by dyers. It is prepared in the following manner: Melt block tin and pour it into water briskly agitated with a bundle of small rods, take of this granulated tin 2 oz., nitric acid 1 lb., water ½ lb., common salt or sal ammoniac 2 oz., mix them together in a glass vessel, and the tin will be slowly dissolved.* When nitro-muriate of tin is to be used as a mordant, it is dissolved in a large quantity of water, and the cloth is dipped in the solution until sufficiently saturated. It is then taken out, washed, and dried. Tartar is usually dissolved in the water along with the nitro muriate of tin. This changes the compound into a solution of the tartrate of tin and nitro-muriate of potash. The tartrate of tin is again decomposed by the cloth. The metal quits the acid and attaches itself to the fibres of the cloth, and in this state possesses a strong affinity for coloring matters, and forms with them the most permanent and brilliant dyes.

Tan is also employed, along with other mordants. It is found in nutgalls, oak and hemlock barks, sumach, and in a great variety of other vegetables. It is that part of barks, &c. which has a strong affinity for glue, of which hides are chiefly composed, unites with it and forms leather. It has a strong affinity also for cloth and for several coloring matters. Silk is capable of absorbing a very great proportion of tan, and thereby acquires a great increase of weight. For this purpose alone it is sometimes employed by silk manufactures. Tan is often employed, also, along with other mordants, in order to produce a compound mordant. Oil is also used for the same purpose, in dyeing cotton and linen.

Besides these mordants there are several other substances frequently used as auxiliaries, either to facilitate the combination of the mordant with the cloth, or to alter the shade of color; the chief of these are tartar, sugar of lead, common salt, sal ammoniac, sulphate of copper, (blue vitriol,) acetate of copper, &c.

Mordants not only render the dye permanent, but have also considerable influence on the color produced. The same coloring matter produces very different dyes, according as the mordant is changed. Cochineal, with salts of iron, produces black,—with the salts of tin, scarlet,—and with alum, crimson. In dyeing, then, it is not only necessary to procure a mordant which has a sufficiently strong affinity for the coloring matter and the cloth, and a coloring matter which possesses the wished-for color in perfection, but we must procure a mordant and a coloring matter which, when combined together, shall produce the wished for color in perfection.

The colors denominated by dyers simple, because they are the foundation of all their other processes, are four, viz. blue, yellow, red, and black. A few simple directions for dyeing wool, silk and cotton of these colors will now be given. We write for prudent and economical housewives, silk culturists, and agricultural manufacturers, and the means within the reach of such must there-

* When common salt, which is composed of muriatic acid and soda, or sal ammoniac, composed of the same acid and ammonia, is mixed with diluted nitric acid, a part of the nitric acid seizes on the soda or ammonia, and sets at liberty a part of the muriatic acid, which mixing with the remaining nitric acid, forms nitro-muriatic acid, (aqua regia,) which readily dissolves tin, gold, &c. It is more economical, however, to add sulphuric acid enough to saturate the base of the salt, which sets all the muriatic acid at liberty, and leaves the nitric acid undiminished.

fore be kept continually in view, in all the operations recommended.

Blue.—Indigo is the only substance that can be economically used in families for coloring blue. The best or purest indigo is light, easily powdered, tasteless, almost destitute of smell, and breaks smoothly, that is, with smooth surfaces. Some will float on water, and this is generally the purest. The color of indigo also varies. There is the blue, the violet, and copper colored. Although these may all contain nearly the same quantity of coloring matter, yet they are differently valued, the blue selling 20 per cent. higher than the violet, and from 40 to 80 per cent. more than the copper colored. The blue is preferred by dyers for combination, or solution in sulphuric acid, and the copper colored for the indigo vat, in which it is dissolved in a potash ley, aided by bran, madder, or other vegetable products, in a state of fermentation. Before indigo can be applied and fixed upon the fibre of cloth, it must be dissolved in water. But it cannot be dissolved in water in its blue state; it must be converted to a green or yellow color, and then it readily dissolves, is attracted by the fibres of the cloth, becomes permanently combined with them, and on being exposed to the air becomes again blue. In the solution of the indigo, therefore, consists the whole art of coloring blue. The following are among the most easy and simple methods of dissolving indigo, or, in other words, forming a blue dye.

First Method.— Take indigo, well powdered, one ounce; quick lime, one ounce; potash, two ounces; copperas, two ounces; molasses, half a pint; warm water, one gallon. Mix, and stir occasionally, keeping the vessel, of copper, iron, or earthen, well covered and in a warm place. The liquor will soon become green, covered with a copper colored or blue scum. In twenty-four hours it will be fit for use. Immerse the stuff to be colored for a longer or shorter time, according to the shade required. The strength of the color may also be varied by using a greater or less quantity of water. A very little practice will enable any one to give wool, silk, or cotton, properly prepared, with this dye, a beautiful and permanent blue, of any shade they may choose.

Second Method — *Saxon Blue.*—In this method, the indigo is dissolved by the aid of sulphuric acid, without losing its blue color, but it undergoes a change which renders it less permanent, and is therefore not much used, except for articles not very durable, or when a deep, unfading tint is not considered of much importance. This preparation is kept in the shops, under the name of *Liquid Blue*, or *Chemical Blue*, and is much used for blueing white cotton and linen garments, from which it is readily washed out, even in cold water. It is also extensively used in coloring greens, giving, with yellow, a more brilliant color than the blue obtained by the first method. On wool and silk it is much more durable than on cotton, and on articles which do not require frequent washing, may be often used advantageously as a blue dye. It is prepared as follows:

Take indigo, well powdered, one ounce; sulphuric acid, four ounces — mix it in a glass or stone ware vessel, and let it stand twenty-four hours, stirring it occasionally— then add one ounce of dried potash. Let it stand twenty-four hours longer, add half a pint of water, and bottle it up for use.

Mix a wine glass full of this liquid in a pail full of boiling water, and dip the stuffs till they acquire the color desired. More of the liquid must be added when the water becomes nearly clear, before the stuffs have acquired a color sufficiently deep.

Yellow.—There are a great number of imported and native plants, roots and barks, that, by the aid of the mordants alum and tin, dye yellow. But the very best of all these, viz. the yellow oak bark, or quercitron bark, as it has been named in England, being very plenty in this country, it seems altogether unnecessary even to mention any other.

To dye 10 lbs. weight of cloth, or woollen stuffs, of the highest and most beautiful orange yellow, 1 lb. of quercitron bark, and the same weight of murio-sulphate of tin, will be required*; the bark, powdered and tied up in a bag of thin cotton or linen cloth, may be first put into the dyeing vessel, which of course must be brass, copper, glass or earthen, with hot water, for the space of six or eight minutes; then the murio-sulphate of tin may be added, and the mixture well stirred two or three minutes. The cloth, previously wet thoroughly with warm water, may be put in and turned briskly a few minutes; the color applies itself in this way so equally to the cloth, and so quickly, that after the liquor begins to boil, the highest yellow may be produced in less than fifteen minutes, without any danger of its proving uneven.*

* Murio-sulphate of tin. This preparation differs somewhat from the muriate of tin, or nitro-muriate of tin, the method of preparing which is given in a preceding part of this essay. It is prepared as follows: Take six ounces of muriatic acid, and pour it upon about the same weight of tin, granulated as above directed, in a glass vessel. Then pour slowly upon the same four ounces of sulphuric acid, and let it stand in a warm place till the acids saturate themselves with tin, that is, till they will dissolve no more, which will be soon effected, if heat be applied, and gradually without being heated.

* Should a deeper orange tint be desirable, add to the quercitron bark a little madder, perhaps an ounce or less to the pound of bark, according to the color desired. This will greatly increase the beauty of the color, when examined by candle-light

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OF RAISING CEDARS FROM THE SEED, AND TRANSPLANTING THEM FOR HEDGES. —We annex below the extract referred to by our correspondent, and thank him for pointing out what we had forgotten, and still more for adding thereto his own experience on the subject.

Fayetteville N. C., Feb. 16, 1835.

To the Editor of the Farmers' Register.

Mr. S. Hobson will find in page 22, Vol. III. of the American Farmer, the mode of raising cedar hedges from the seed. I have followed the directions given there with the most satisfactory results. More than half the cedar berries prepared and planted agreeably to those instructions vegetated and flourished well.

I have not lost more than one tree in 50 by transplanting, unless the tops were cut off. In that case the trees die or decline, so as to be of little account: they will improve by severe trimming if the top is left perfect. I prefer a wet season in March or April for transplanting ever-greens, but have succeeded by taking proper pains at all seasons, except the extremes of heat and cold. B. R.

[From the American Farmer.]

Gather the berries in November or December. Rub off the skin and wash the kernels—rubbing them well between the hands, so as to get off as much of the resinous substance as possible, then mix them with unslacked ashes, and let them remain in the ashes for a fortnight; then plant them in drills as you would peas, and they will vegetate and come up the following spring; and being well nursed, they will in two years be fit to plant out in hedges. About the first of March is the proper time for planting them—throw into the bottom of the trench, light rich earth, such as may be had from the surface of productive ground. When the trees attain three feet high, you should begin to train the hedge—about the middle of summer is a suitable time for this operation, and it ought to be carefully continued until the hedge is as high as you may desire it—about seven feet high, and three and a half feet broad, is sufficient.

N. B. The better you cleanse the kernel, the more certainly the seed will vegetate—by proper care an excellent hedge may be expected in seven years, which for beauty and durability cannot be surpassed, either by thorns or any other growth.

Broom Corn. By H. C. [For the New York Farmer and American Gardener's Magazine.]

The cultivation of Broom Corn is carried on to a very great extent on some of the alluvial lands on the Connecticut river, and in small patches in many of the interior towns The towns of Hadley and Hatfield raise large quantities, which are manufactured into brooms, and distributed throughout the country. The seed is considered of about two-thirds of the value of oats, and, mixed with corn, makes an excellent provender for the fattening either of swine or neat cattle. The return of seed is somewhat precarious; but often it is abundant, and will more than pay the whole expense of cultivation and preparing the crop for the market. I have known a case in which 150 bushels of good seed have been obtained from an acre; and I have been assured, on good authority, of a still larger yield, though this is not frequently to be expected. One thousand pounds of broom to an acre is a very good crop. It will pay well for manuring and good culture. No crop is more beautiful than the standing corn when in perfection. It frequently attains a height of 12 to 15 feet. The stalks of the plant are very long and hard, and, therefore, rather difficult to load upon a cart. They are considered as of no value but for manure. The usual practice is to table the corn, that is, to cut off the top, or tassel the broom, as it is called, about two feet from the top, and bending the stalks of two rows together, lay it down until it is seasoned and fit to be carried in. The remainder of the stalks are then burnt in the spring in the field, and some little advantage is derived from the ashes. A much better way, it is thought, is, after gathering the crop, to cut the stalks and lay them lengthwise in the rows, and plough them immediately under. They will become entirely decomposed by spring. A still better mode is to carry them into the cattle and sheep yards, where they become incorporated with the manure, and make a valuable addition to the compost heap.

The seed is planted in rows, wide enough apart for the plough to pass conveniently between them, and dropped in hills about

eighteen inches from each other. Four or five stalks are considered sufficient to remain in a hill—more are sometimes allowed. The cultivation and manuring is more than for Indian corn. It may be manured in the hill or by spreading, or in both ways, as you have the means of high cultivation, which this plant will bear. The stalks are not eaten by cattle, nor even browsed by them; but I am not certain that the leaves would not furnish a good feed for young stock, if stripped early, when tender, and well cured, as the Indian corn blades are cured at the south. What would be the effect of such mutilation upon the crop itself, and whether it would compensate for the labor, are inquiries which I am not able to answer, and in respect to which I cannot learn that any experiments have been made. It is an important subject for experiment. As it is at present managed, the plant returns little to the ground compared with Indian corn; and the Hadley and Hatfield farmers are obliged to connect with it the fattening of beef to a considerable extent, to furnish manure for their broom corn.

It is deemed a good crop when the broom commands five cents per lb. The price has heretofore been subject to great fluctuations. At one time it was the custom for every farmer to make up his own brooms, and then to go and sell them where he could. This was bad for all parties. It brought too many competitors into the market; and often unduly depressed the price, and the buyers were often obliged to put up with an inferior article. Now the manufacturing and the growing of the broom are in different hands; and the farmer, as soon as his broom is ready for the market, finds a purchaser at a steady price; and the manufacturer feels that his reputation, and consequently his success, are concerned in the quality of the article which he furnishes.

It is a little remarkable, that notwithstanding the extent and importance of this product, for one manufacturer within a few miles of me makes several hundred thousands of brooms a year, that in no book of agriculture in my possession can I find any account of the cultivation of this plant, not even in that excellent New-England work, "The *Complete* Farmer." The Shakers for a long time almost monopolized the raising of the plant and the manufacture of brooms; and their brooms, which, like the other manufactures of this industrious community, were always of a superior quality, usually commanded a high price, generally 42 cents or more. Corn brooms are now frequently sold from eight to twenty-five cents; but many of them are like Pindar's razors, "made to sell." The Shakers, however, maintain the quality of their manufacture. The handles, in an unfinished state, are furnished for a cent a piece; the wiring and the tying on are usually done by the hundred. The scraping the seed from the brush is an unpleasant business, and often very injurious to the eyes. The manufacture, where it has been carried on extensively and with ample capital, has yielded encouraging profits.

An intelligent and enterprising farmer in my neighborhood, who last year cultivated three acres and one half of broom corn in our alluvial meadows, has been kind enough to furnish me a detailed account of the expense of cultivating an acre, which may be relied on for its exactness, but in which the rate of labor is probably over-estimated by the day. His broom was sold in the autumn at eight and one half cents per lb. It readily commands this spring 12½ cents; had he fortunately retained his broom until this time, the profits would have been greatly enhanced, while the expenses would, of course, have remained the same.

Account of the expenses of cultivating an acre of Broom Corn in Deerfield meadows, in the year 1834, by Mr. Alvah Hawkes:

One ploughing, 12th May, .	$1.25
Holeing out, one third of a day's work,	34
Ten loads of manure, at 75 cents,	7.50
Putting manure in the hill, .	2.00
Planting, one day's work, .	1.00
Seed, 4 quarts, at 75 cents per bushel,	10
Hoeing, first time 3 1-2 days, .	3.50
do 2d do 3 do .	3.00
do 3d do 2 1-2 do .	2.50
Horse and boy to plough for the season, ...	1.00
Tabling and cutting, 4 days, .	4.00
Gathering, carting, and packing away,	2.50
	$28.68

The expense of cultivating one acre is $28.68 cents, the labor being rated at one dollar per day, which is more than the actual cost, as I hired my laborers by the month, at from six to ten dollars per month. The yield was at the rate of 991 pounds to the acre. Had all my ground been fully stocked, it would have exceeded ten hundred pounds per acre.

The expense of scraping the brush for the seed was thirty-three cents per hundred pounds. The brush was sold at 8½ cents per pound. The crop of seed was light and poor; fifty bushels to three acres, worth 16 2-3 cents per bushel, or $8.33 to an acre.

Summary expense of cultivation of one acre as above, . .	28.68
Scraping 1000 pounds, . .	3.30
Board of man 5 days, . .	1.07
Rent of land, say $16 per acre,	16.00
	49.05
Sale of brush, 1000 lbs. at 8½c.	85.00
Seed upon one acre, .	8.33
	93.33
Nett profit on one acre, . .	$44.28

The sale of the brush at 12½ cents per pound, the present price, would have enhanced the profits forty dollars, and made them $84.28. This is very remarkable, and certainly affords ample encouragement to labor. That it can be often done is not to be expected; and yet there is nothing extraordinary in the process. The uncertainty of the seasons is something, and the fluctuations in the market prices of broom are great. The amount of crop, though large, was not more than can usually be commanded by good and generous cultivation. Many of our lands, besides the alluvial meadows, are capable of producing good crops; and the great yield of 150 bushels of seed to the acre mentioned above, with broom, of course, in proportion, was produced in one of the most rough and rocky towns in the commonwealth, and on land which owed every thing to good management. I hope the length of these details may be excused. H. C.

Meadowbanks, 7th May, 1835.

ANTHRACITE ASHES.—The *Philadelphia U. S. Gazette* says, "A lot of land, clay and sand, was covered over with ashes from anthracite coal, and clover seed sown upon it in abundance. The clover after waiting a little while longer than usual, sprung up like an ill weed, and about two weeks since presented a luxurience of growth exceeding any thing of the kind we ever saw. The clover had the appearance of tall pea vines, so rank had it shot up. If anthracite ashes have such virtue, it would be well for the public generally to understand it."

SHEEP SHEARING AT NANTUCKET.—This annual festival, and the only holiday celebrated upon the Island, takes place on Monday and Tuesday next. The steamboat Telegraph leaves New Bedford for Nantucket on Sunday morning and Monday afternoon.

THE GRAIN CROPS.—The subjoined letter is from a respected friend in Jefferson county, Virginia (one of the most productive grain-growing counties in the State.) In publishing so unfavorable an account of the crops in that quarter, it seems to be proper to say that the accounts from the Pennsylvania grain districts, and other parts of the country, are altogether more favorable than the following, and promise indeed an average crop.—[National Intelligencer.]

VIRGINIA, JUNE 11, 1835.

To the Editors.—Gentlemen: The crop of wheat is actually indifferent, indeed bad—few can reap half a crop, and others not more than a third or a fourth. The rye is generally tolerable. The corn is backward, and by good cultivation and a favorable season will be considerable, there being more than is commonly planted. The oat crop, if favored with rains, will be great, as much more than usual is sowed, to supply the deficiency or failure of the wheat, destroyed more by the fly than by the winter. The certainty of a great scarcity of wheat and rye, should induce merchants to prepare to import grain, otherwise the population of the large cities will greatly suffer. It will be unwise and very imprudent, to trust altogether to the harvest of this year. If this shall be the indiscretion of merchants, distress among the poor population of large cities will be extreme. This country will have no grain for exportation, and as the probability is, there will be a deficiency of grain for home consumption, resort should be had to foreign countries that may have to spare. Yours, &c.

[*From the Troy Whig.*]

WHEAT CROPS, in many parts of the country, appear to have been materially injured by the severe winter. In Maryland not more than half a crop will be secured—the wheat being either "frozen out" or "blown out" of the ground, leaving large sections almost entirely bare. In some few instances, the wheat fields had been ploughed up and planted with Indian corn. The latter, it seems, has also suffered greatly from the cut worm; but the Rye is represented as quite promising, and the crops of Clover, Grass, Potatoes, and Fruit, with the exception of peaches, bid fair to be unusually abundant.

The Richmond Enquirer states that the wheat crop in Virginia does not promise one third of the usual harvest. The severe winter has injured it extensively through all the South.

In the western part of the state of New York, Wheat has suffered more from the winter, perhaps than was ever before experienced. The large harvests of Genesee county will be diminished.

In some districts, however, appearances are better. The Pennsylvania papers speak of the prospect of an abundant harvest.

The Cincinnati Post of May 30, says—"The season, which but a few weeks since was very unpromising, now bids fair to be one of the most productive that has been for many years, even the wheat will prove to be at least an average crop.

The Poughkeepsie Eagle of the 8th, says—the prospect of the approaching wheat crop in this county, is generally good.

NEW-YORK AMERICAN.

JUNE 18—19. 1835

LITERARY NOTICES.

WORKS OF JAMES K. PAULDING, vols. I. and II. Uniform edition. New York, HARPER & BROTHERS.—The two volumes which commence the series carry us back at once to the days of our boyhood—and to the impressions, yet fresh and uneffaced, which *Salmagundi*, on its first appearance, made upon young and old of the town:—we have here Salmagundi re-published. Mr. Paulding, it is well known, shares with *Washington Irving* in the authorship of these charming papers—which have been revised by both, but most judiciously not altered—"a few of the most glaring errors and flippancies only," as it is modestly said in the preface, having been expunged. To the thousands and tens of thousands of readers of the present day, who only know *Salmagundi* by tradition, the publishers have, in these volumes, rendered an acceptable service. They have, too, given them a very handsome mechanical dress and execution.

THE FAMILY BOOK, OR INSTRUCTIONS CONCERNING THE RELATIONS OF LIFE: 1 vol. New York, D. APPLETON & Co.—Practical religion, as it is called for, and exemplified, in the every day life of those who are truly influenced by its spirit, is the theme of this volume. It is therefore a serious volume, and only to be taken in hand by such as are disposed seriously to inquire into, and abide by, the lessons it inculcates.

The whole story of the Sutton family is well devised, and sustained with skill and consistency.

PENCIL SKETCHES, or Outline of Character and Manners—by MISS LESLIE. Second series. 1 vol.: CAREY, LEA & BLANCHARD.—Keen observation, quick perception of the ridiculous, and a quiet humor in the mode of bringing out the characters, recommend these Pencil Sketches—now gathered into a volume, from the different periodicals in which they originally appeared.

WORKS OF MRS. SHERWOOD; vol 10—uniform edition—New York; HARPER & BROTHERS.—In this volume the *Lady of the Manor* is continued; being the second of four volumes, in which this portion of Mrs. Sherwood's works are to be comprised.

REVISTA MEXICANA. Periodico cientifico y literario No. 1, vol. I. *Mexico*—1835, p. 100.—This is the commencement of a periodical work, formed somewhat on the plan of the Quarterly's of England and America, but embracing also matter, which with us is deemed appropriate to the pages of a Monthly Magazine. It is to be published once in every two months; and, as we are informed in a well written introduction, embraces a large circle of topics for discussion, from which *politics* are excluded.

A brief notice of the subjects of some of the articles will perhaps furnish the most correct idea of the work. The first article is "upon the capacity of the Indians to form abstract and general ideas," and purports to be a "refutation of Robertson."

In the department of History we find "documents pertaining to the reign of Philip IV.," published for the first time from the original Mss., and a notice of "some of the voyages and maritime discoveries made by the Spanish;" commencing in 1393, and brought down to 1792. This is extracted from *Navarrete's* collection of voyages and discoveries; and it has occurred to us, that in the department of history, the work may be made one of much interest to the American antiquarian. By the way, the successful application of steam as the propelling power of boats, would seem, from *Navarrete*, to have been made as far back as the year 1543, by one *Blasco de Garay*, who exhibited his success in the port of Barcelona, with a steamboat of 200 tons, in the presence of many. He was rewarded by the crown, and a record of the whole transaction, extracted from the royal archives, and duly authenticated, is presented by *Navarrete*.

There is also a very interesting biographical sketch of Dona Beatris de Bovadilla, the early companion and heroic friend of Queen Isabella. It was to her earnest, and, according to *Pinel*, eloquent entreaties, that the Catholic Queen was prevailed on to extend to "the great admiral" that patronage which resulted in the discovery of America.

We have not room for farther remark on the other articles. We hope that so fruitful a theme as the antiquities of Mexico will not be overlooked in succeeding numbers of the work, and commending, as we most cheerfully do, this first specimen, for much interesting matter, presented on excellent paper and in a beautiful type, we shall look with interest for those which are to follow.

THE REPUBLICK OF LETTERS; No. 53. Edited Mr. *H. H. Nicholas*: New York; GEO. DEARBORN.—In Wednesday's paper we referred to the new auspices under which this work was henceforth to appear, and we now have to acknowledge the first number of the the third volume. The Essays of *Elia*, (Charles Lamb,) lead off, and to give an idea of the cheapness of this production, it may be stated that the two volumes of these Essays, will be comprized in three numbers, costing 18 3-4 cents, of the Republic of Letters. Nor is this result produced by employing small type, or common materials. On the contrary the stereotyped pages are open, clear, and distinct, and the paper is white and of excellent quality.

JACOB'S LATIN READER, with notes and illustrations, by JOHN D. OGILBY: 5th New York edition: New-York, W. E. DEAN. In stating the title of this school-book, and the fact that it has already passed to a fifth edition here, we furnish its best and sufficient voucher.

AN ENGLISH GRAMMAR, in which the principles of the language are methodically arranged and practically illustrated, &c. &c., for the use of schools: by CORNELIUS B. EVEREST: Norwich, J. DUNHAM. This is a well printed grammar, which adopts the method of instruction of Murray.

ANNALS OF PHRENOLOGY: vol. II, No. 1: Boston, MARSH, CAPEN & LYON. We have not before seen this periodical which must now be of some age. It is published under the superintendence of a committee, who are the Rev. *John Pierpont, Mr. W. B. Fowle, and Doctors F. F. Flagg and John Flint.*

THE HISTORY OF IRELAND: by Thomas Moore, Esq., vol. I., Philadelphia; CAREY LEA & BLANCHARD.—We have, before, in speaking of this first volume of a work, that will swell through several we presume, described it, on the faith of some extracts we have seen, as full of antiquarian research, written in a style the opposite of that which Moore has heretofore adopted, and dry enough to be in keeping, with the musty records, which have been ransacked for materials. Its history comes down only to the end of the seventh century. As it advances towards our ages, it will also, we doubt not, increase in interest.

THE AMERICAN MONTHLY MAGAZINE for June.

THE KNICKERBOCKER MAGAZINE for June.

THE U. S. NAVAL AND MILITARY MAGAZINE for June. HOMANS—Washington.

THE TURF REGISTER for June. SKINNER—Baltimore.

We have thus clubbed the Magazines for the month, and shall have a word or two to say of each.

THE AMERICAN MONTHLY is very good. Its articles are in good taste, well written, and of abundant variety. The critique on Mrs. Butler's Journal, is generous and just. A most unbecoming quantity of indignation has been heaped upon that production, which in this notice is spoken of with a full perception of the talent and genius of the authoress, and with just reprobation, of its most glaring offences. Take the following extract:

Our objections to the work, then, and they are not few, are not based upon illiberality; for it does not strike us as being illiberal. They are chiefly directed to the want of good taste, as well as a proper sense of good breeding, which characterizes it from first to last, wherever individuals are alluded to. In accepting the hospitalities of any individual, an obligation is contracted, from which no mind having a proper sense of dignity and delicacy can ever relieve itself, not to take advantage of the opportunities thus furnished for observation, through an act of kindness towards the observer, for the purpose of exhibiting those who exercised it in a ridiculous view to the world. It strikes us that even in a familiar letter to a friend, there would be a repugnance to an honorable mind, to dwell with complacency on what might seem to us absurd in the character or manner of those who had treated us with kindness. To publish such absurdities to themselves and to the world, with no better disguise than an occasional asterisk, seems abhorrent, and, were it not for the evidence of the book before us, impossible. Defend us from such teachers of good breeding!

This might square with the creed of a person from some one of the inferior classes of a country where only the great and their associates are well bred, because only the great are natural, but it never would have been practised by an Englishman of the aristocracy or gentry. It is a quality which the possessor carries every where into all kinds of society, and which cannot be shaken off. It cannot be of one description at Devonshire-house, and of another in a brick three-story of Broadway; it must be the same in both places, or it can be nothing anywhere. It must be a courteous, proud, and honorable feeling, governing the character, and regulating the conduct in small things as in great.

The Frenchman's Story is one of thrilling interest, and admirably told. It is of the Revolution and its horrors. One passage will speak for the rest. The scene is the *Place de Greve*, where the guillotine was erected in permanence, with a *wagon load* of human beings about to be massacred:

Among these, the most remarkable was a venerable old man, whose bent figure, thin white hair, high wrinkled forehead, and withered complexion, bespoke the extremity of age, yet his manner was firm, and he never forgot for a moment the calm propriety of his demeanor. By his side stood a woman, now no longer young, but retaining much of the beauty, and all the dignified elegance of earlier days. She stood erect, and supported without effort the arm of the old man, who leaned heavily on hers. The other hand rested on the neck of a fair young girl—a mere child—not apparently more than ten years old, whose tear-swollen eyes were fixed on her mother's face with the sad and touching melancholy of childish grief. They spoke not much together; once, as the wagon stopped near where I stood, I heard the old man murmur some words of patience and encouragement to his companion; as he spoke, she turned her eye towards the child—she gazed on that fair young face, and all a mother's love beamed in her eye—the trial was almost too great for her—her lip quivered—her face grew more deadly pale—but in a moment, by a strong effort, she banished from her look every appearance of weakness. She raised her eyes to heaven—her lips moved—and then, as if her prayer for fortitude had been instantly answered, she turned a bright and smiling look on the little innocent—smoothed back the curling hair that clustered round that lovely forehead, and the mother imprinted one long fond kiss on the brow of her child. The wagon passed on, and I inquired the name of the victims whose appearance had so

strongly interested me. It was Malesherbes—the honest and able minister—the undaunted advocate—the kind and true friend of Louis Capet—accompanied by his daughter, the Marchioness Rocambo, and her child—he was about to die on the scaffold. But the child! surely they would not murder the child? And why not? The old man's crime was his innocence and purity of character—how then could the child escape? The wagon was drawn up beside the guillotine, and all was soon ready for the first execution. Malesherbes stood nearest the steps, and he was about to descend, when a savage voice cried out, "The child first!" The old man would have remonstrated, but his daughter checked him—"'Tis but a moment, my father," said she, 'tis but a moment,"—she raised the child in her arms, and herself handed it to the executioner. The little creature, frightened by the savage looks of the man, screamed out, "Don't leave me, mother—come with me—don't leave me." "I will not leave you, my child—*I will be with you in a moment.*" The child was pacified, and the mother turned towards her aged parent, and buried her face in his neck; he, too, bent forward till his white hair flowed over her shoulders. Thus they saw nothing—yet they were so near they must have heard the jerk of the string, that loosed the ponderous axe—its clatter as it fell. A strong shudder shook the frame of the mother: but when the executioner called out, "Now for the woman," she raised her placid face from her father's neck—looked fondly in his face—kissed his cheek—"For a brief moment, farewell, my father." She stepped with a light firm tread from the wagon—mounted the scaffold—and in a moment *she was with her child.*

Malesherbes came next; he had summoned all his energies for this last scene in his life's drama, and he played it nobly. Never in the proudest days of his power had the minister looked or moved with a loftier dignity. With a wave of the hand, he repulsed the rude advances of one of the guard, who would have assisted his descent from the wagon. Self-sustained, in body as in mind, he advanced slowly to the scaffold—even the fiends who surrounded it were awed—they shrunk back, and allowed the old man to place himself, almost unassisted, on the platform. They would have bound him, but he gave a forbidding look—it was enough—the executioner retired—the plank was pushed forward—and for a moment the old man must have seen, in the basket below, the heads of his children. This additional pang, if it was one, was short; the executioner jerked the string, and all was over.

We conclude with a short and well-related naval incident—if so a passage on shore may be called:

A few years since, the officers of our frigate, then lying at Mahon, were invited by the Dutch officers to join in the funeral ceremonies of paying the last tribute of respect to one of their departed shipmates. At the appointed hour we assembled on board the Dutch ship, and shortly after took our station in a line of some ten or twelve boats, pulling minute strokes, with colors half-mast. Landing at fort St. Philip, the procession moved in the following order: our band in the van playing a funeral dirge, the Dutch marines, then the coffin, borne by eight men, a division of sixty sailors, followed by the Dutch and American officers and a number of citizens. In this order we commenced our march up to the burying ground with slow and martial tread. It was certainly an imposing scene, and one well calculated to call forth sober and solemn feelings, and reflections of a melancholy cast. When about midway in our passage, a scene took place which the pen, the pencil, or the tongue, is inadequate to describe, changing our gravity to mirth, and upsetting all our gloomy meditations. We came to a sudden halt—the music ceased, and were seen retreating to the rear; the Dutch marines, from the "reverse arms," brought their pieces to the "charge," with fixed bayonets—the swords leaped from the scabbards and glistened in the sun; and with the clattering of instruments, the clashing of arms, and the "war shout" of our party, we received the enemy. He came down upon us, under cover of a cloud of dust, breaking through the troops, capsizing the coffin, trampling some under foot, tossing others in the air, and dispersing the rest of the party; and then halting in his furious charge, turned round, and, with a look of inexpressible amazement, reared aloft his noble head, and died covered with wounds.

The mysterious enemy proved to be as noble a looking *bull* as ever nature gave liberty to roam the prairies. He was large, powerfully built, and of perfect symmetry, with a coat of black matted curly hair about his short curved neck and tremendous shoulders—his body smooth and of a glossy black—his horns were short, stout, and well pointed. He was grazing quietly in a field, when his attention was attracted by the music; but the sight of the scarlet uniform of the band soon roused his passion, and he commenced pawing the earth, thrashing his tail, and shaking his head, with evident signs of increasing anger; then he would make one or two fearful bounds, plough up the earth with his horns, and throw himself into a thousand attitudes: at last, as the procession neared him, his rage became ungovernable, and clearing the wall with a graceful leap, he came bounding along the road with his head down, his nostrils distended, his eyes glaring fire, the foam flying from his mouth, bellowing most furiously, with his tail well "peaked up," dashed through our ranks with all the force and gallant bearing of Murat's cavalry—and one might say with equal effect!—I never witnessed a more ludicrous scene, or heard such a burst of laughter as came from our ranks! Oh! how I wished for Hogarth to have sketched that inimitable scene! The subject, "a Quixotic bull routing a military funeral!!! It took some time to get in *order* again, I mean in regard to position, for our risibles were too highly charged not to render an occasional *blow off* absolutely necessary: the weight of gravity was too light not to keep the valve close, and when it did start up, there was a bursting forth that convulsed the whole party: how the ceremony was performed, I do not know. I only remember the full vent we gave to our feelings on reaching the ship. OCEANUS.

THE KNICKERBOCKER is, we think, less clever than usual. The papers on American literature, are tedious and querulous. They are, moreover, unjust in the assertion, that public opinion, in this country, as to native writers, waits for the sanction of transatlantic critics. The real complaint is, as we think, that public opinion is sought to be forced into the approval of American writings, merely because they are American. Our authors, and our taste as readers, need much more the repression and improvement of judicious criticism, than the stimulus of the forcing American system.

Of the Turf Register we have left ourselves little room to say more, than that it abundantly sustains its interest for sportsmen.

SKETCHES OF HISTORY, LIFE, AND MANNERS IN THE WEST.—Under this title a new work, in two volumes, by James Hall, is about to appear. It will be published by *Harrison Hall*, of Philadelphia, and comprise, as we learn from the Prospectus—

1. A Treatise on the intercourse between the American people and the Indian Tribes.

2. A Review of the History of French settlements in Upper Louisiana and the North-Western Territory.

3. A History of the Pioneers of the Western States—containing a brief account of the first settlements on the Ohio river, and Sketches of the Habits, Manners, and Institutions of the first settlers.

4. Statistics of the Western States—containing a Topographical Sketch of the counntry—an extended description of the region of the Prairies—their agricultural advantages, phenomena, &c., with a theory of their origin. Account of the public lands—the mode of sale and regulations of the office—with a review of the various propositions made in Congress for disposing of the public domain. Steamboat navigation in the West, from its first establishment to the present time—commerce and trade of the Western States—remarks on emigration—with a variety of minor subjects connected with the population, trade, agriculture, and prospects of the Western States.

The skill of Mr. Hall as a writer—his long familiarity with the western country—his accuracy and his research, cannot fail to render this a valuable publication.

SOCIETY is cemented by laws, upheld by religion, endeared by manners, and adorned by arts.

MISCELLANY.

THE ARISTOCRACY OF ENGLAND IN THEIR SOCIAL RELATIONS.—The following are extracts from a pamphlet published under the name of "Isaac Tompkins, gent.," ascribed to Lord Brougham.

"The nobility of England, though it forms the basis and bulk, forms not the whole of our aristocratic body. To all practical purposes we must include under that name all their immediate connexions, and even all who live in the same circles, have the same objects, and from time to time attain the same privileges. The law of the constitution is, that only a peer's eldest son succeeds to his father's honors, and therefore we constantly hear it said that all the rest of the family belong to the body of the people. Nothing can be more true as regards legal rights—nothing more false as regards political and social bias. It is certain that the eldest son alone is deemed by our institutions to be born a lawgiver, a senator, and a judge; that he alone, be he ever so ignorant, stupid, and vicious, is allowed to decide upon the great questions of policy and of jurisprudence, and to sit in appeal upon the decisions of all the legal tribunals of the country, and to judge without review all his fellow-citizens for property, liberty, limb, and life. These high functions are so essentially inherent in him, that no bankruptcy, no idiocy (short of being found lunatic by commission,) no criminality, can deprive him of his judicial and legislative attributes. He may have committed felony, and been transported—or perjury, and been pilloried—or fraud, and been on the tread-mill; yet, the day after his sentence expires, he may take his seat next the Lord Chancellor or the Archbishop of Canterbury, and turn by his vote the fate of a great measure for diffusing universally the justice which he has contemned and outraged; as indeed one voice threw out the Local Courts' Bill: one peer who opposed it had stated his interests to be affected by the measure, being personally possessed of a private jurisdiction.* An act of Parliament is required in such a case to disqualify the hereditary functionary; and, accordingly, a peer in Ireland, having been convicted of taking bribes to decide a cause in the House of Lords there, an act was passed to prevent him from afterwards judging, but he voted on all laws.

* That all these high, precious, grievous, absurd and revolting privileges† are confined to the eldest sons of peers is certain; it is equally certain that a more gross mistake never was committed than theirs who for this reason affect to consider all the younger branches of noble families as equal with the rest of the people. Equal they are in law: they can only use and be used like their neighbors; they pay taxes like them; they cannot ride down the peasant or the shopkeepers with impunity: but so neither can the peers themselves. And yet who shall say that, except privilege of arrest from debt, and the power of sitting in Parliament and as judges, there is any real difference existing by law between the eldest son and his brothers, further than there is between a rich man and a poor? All belong to the same estate; all are alike a favored race in the Government and in society; all have advantages unknown to us of the common people; and therefore all constitute the body of aristocracy in fact, be the law ever so plain in the eldest son's favor.

"The same remark applies to all persons who, from their fortune and education, live with noble families habitually. They are admitted to the same familiarities; they receive the same respect from those who foolishly look up to rank, and yet more foolishly gaze at fashion; they find the avenues to power as well as distinction open to them; they are born even to political supremacy which others earn by working for it and deserving it.—What difference in society is there between a lord's second son, or indeed his eldest, and the son of a rich squire, especially if he be of old family, that is, if his father and grandfather have been squires before him? It is certainly a very great advantage of our constitution that nothing prevents men of no birth from gaining this station by their wealth, and talents, and industry; but still they are, in this most important particular, worse off than hereditary patricians—they have to make their way—to win their spurs; the others start on a 'vantage ground—they are born spurred.

* * * * * * *

"'What, then,' our honest yeoman's son, our worthy tradesman's daughter, may properly ask,

'what is it that gives the aristocratic circles all this extraordinary influence; and first of all, why is the admission into aristocratic society so very highly prized, that we of the middle classes are ready to leave father and mother, and brother and sister, and cleave unto them, if we can only, at the cost of such sacrifices, obtain admittance within their pale?'

"First, it must be admitted that there is a very great, a very real charm, in those circles of society. The elegance of manners which there prevails is perfect; the taste which reigns over all is complete; the tone of conversation is highly agreeable, infinitely below that of France indeed, but still most fascinating. There is a lightness, an ease, a gaiety, which to those who have no important object in view, and who deem it the highest privilege of existence, and the utmost effort of genius, to pass the hours agreeably, must be all that is most attractive.

"After this ample admission, let us add that whoever, after passing an evening in this society, shall attempt to recollect the substance of the conversation, will find himself engaged in a hopeless task. It would be easier to record the changes of color in a pigeon's neck, or the series of sounds made by an Æolian harp, or the forms and hues of an Aurora Borealis. All is pleasing, all pretty, all serviceable in passing the time, but all unsubstantial. If man had nothing to do here below but to spend without pain or uneasiness the hours not devoted to sleep, certainly there would be no reason to complain of these coteries. But if he is accountable for his time, then surely he has no right to pass it thus. Compared with this, chess becomes a science, draughts and backgammon are highly respectable. Compared with this, dancing, which is exercise, and even games of romps, are rational modes of passing the hours. Compared with this, it is worthy of a rational being to read the most frivolous romance that was ever penned, or gaze upon the poorest mime that ever strutted on the stage.

"The want of sense and reason which prevails in these circles is wholly inconceivable. An ignorance of all that the more refined of the middle, or even of the lower classes, well know, is accompanied by an insulting contempt for any one who does not know any of the silly and worthless trifles which form the staple of their only knowledge. An entire incapacity of reasoning is twin sister to a ready and flippant authoritative denial of all that reason has taught others. An utter impossibility of understanding what men of learning and experience have become familiar with stalks hand in hand insolent and exulting, with a stupid denial of truths which are all but self-evident, and are of extreme importance. Every female member of this exquisite class is under the exclusive dominion of some waiting maid, or silly young lover, or slander-mongering newspaper; and if not under the sway of one paper, lives in bodily fear of two or three.—Bribes, entreaties, threats, are by turns employed to disarm these tyrants; and however tormented the wretched victim may be, she is forced by some strange fatality, or propensity, to read what most tortures her.

"Indeed, the relations of this aristocratic class with the press form one of the features most illustrative of the aristocratic character, replete as it is with all the caprice and waywardness, the unreasoning, and often unfeeling propensities, the alternate fits of blindness to all danger, and alarm where all is safe—in short, all that goes to the composition of a child, and a spoiled child.

* * * * *

"That their encouragement is confined to the vilest portion of the press has long ago been affirmed, and is not denied. The respectable journals are no favorite reading of theirs. The newspaper that fearlessly defends the right, that refuses to pander for the headlong passions of the multitude or cater for the vicious appetites of the selecter circles, that does its duty alike regardless of the hustings and the *boudoir*, has little chance of lying on the satin-wood table, of being blotted with ungrammatical ill-spelt notes, half bad English, half worse French, or of being fondled by fingers that have just broken a gold-wax seal on a grass-green paper. But more especially will it be exeluded, possibly extruded, from those sacred haunts of the Corinthian order, if it convey any solid instruction upon a useful or important subject, interesting to the species which the writers adorn, and the patricians do their best to degrade. Even wit the most refined finds no cho in such minds; and if it be used in illustrating an argument, or in pressing home the demonstration (which it often may be,) the author is charged with treating a serious subject lightly, and of jesting where he should reason. Broad humor, descending to farce, is the utmost reach of their capacity; and that is of no value in their eyes unless it raises a laugh at a friend's expense. Some who have lived at court, and are capable of better things, say they carefully eschew all jests; for princes take such things as a personal affront—as raising the joker to their own level, by calling on them to laugh with him. One kind of jest, indeed, never fails to find favor in those high latitudes—where the author is himself the subject of the merriment. Buffoonery is a denizen in all courts, but most commonly indigenous; and after the court's example, patrician society is fashioned. It is not in the true aristocratic circles that any one will adventure the most harmless jest who would not pass for a Jacobin or a Freethinker. He may make merry with the led-captain or the humble companion, or possibly the chaplain (though that was rather of the olden time, before the French Revolution had taught the upper orders to pay the homage rendered by vice to virtue, without acquiring piety or morals.) Any other kind of wit rather indicates, if tolerated, that the adventurous individual has found his way thither from the lower latitudes of the liberal party.

"From a contemplation of the aristocracy, the result of sorrowful observation, not of irritable displeasure, we naturally turn to its lamentable but inevitable consequence. Can society long remain in this most unnatural state?

"* No charge rested on the noble lord; but it is given as an illustration. A clause in the bill had exempted his court.

"† This perfection of our mixed constitution (the envy of surrounding nations!) is thus described by a zealous Church-and-King-man—the Tory Dean Swift—as far as decency allows an extract from the Rev. author's work:—

"'I told his Honor that nobility among us was quite a different thing from the idea he had of it; that our young noblemen are bred from their childhood in idleness and luxury; that as soon as years will permit, they consume their vigor and contract odious diseases among ****; and when their fortunes are almost ruined, they marry some woman of mean birth, disagreeable person, and unsound constitution, merely for money, whom they hate and despise; that the productions of such marriages are generally scrofulous, ricketty, and deformed children, by which means the family seldom continues above three generations, unless the wife takes care to provide a healthy father among her neighbors or domestics, in order to improve or continue the breed. * * * The imperfections of his mind run parallel with those of his body, being a composition of spleen, dullness, ignorance, caprice, sensuality, and pride: Without the consent,' adds the Dean, 'of this illustrious body, no law can be enacted, repealed, or altered; and these nobles have likewise the decision of all our possessions without appeal.' No one can deny that this is a most exaggeratcd and even false as well as disgusting representation. Yet this same very Rev. divine cants you for an hour by the clock, 'on the 30th of January, 1726, being Sunday,' about 'the blessed martyrs,' and 'the blasphemies of the Puritans, who dispensed with a House of Lords.' Verily, he should havc served under the present Ministry, and with the supporters of the trustworthy landed interest, which has lately covered itself with such glory!"

A Reflection.—Round the idea of one's mother the mind of man clings with a fond affection. It is the first, sweet, deep thought stamped upon our infant hearts, when yet soft and capable of receiving the most profound impressions, and all the after-feelings of the world are more or less light in comparison. I do not know that even in our old age we do not look back to that feeling as the sweetest we have known through life. Our passions and our wilfulness may lead us far from the object of our filial love; we learn even to pain her heart, to oppose her wishes, to violate her commands; we may become wild, headstrong, and angry at her counsels or her opposition; but when death has stilled her monitory voice, and nothing but calm memory remains to recapitulate her virtues and good deeds, affection, like a flower beaten to the ground by a past storm, raises up her head and smiles amongst the tears. Round that idea, as we have said, the mind clings with fond affection; and even when the early period of our loss forces memory to be silent, fancy takes the place of remembrance, and twines the image of our dead parent with a garland of graces and beauties and virtues, which we doubt not that she possessed. Thus had it been with De Vaux: he could just call to mind a face that had appeared to him very beautiful, and a few kind and tender words from the lips of her he had called mother: but he had fancied her all that was good and gentle and virtuous; and now that he was forced to look upon her as a fallen being—as one who had not only forgotten virtue herself, but in sin had brought him into the world, to degradation and shame—what could be his feelings towards her?—[The Gipsey.]

[*From the National Gazette*]

The fondness of the Orientals for allegory is well known. One of the most curious instances of it is found in an Arabian poet, who narrates a suit which was pleaded on both sides and judged under an allegorical veil, and which seemed an enigma to those who were not in the secret. The following account of it is abridged from the "Mélanges de Littérature Orientale" of M. de Cardonne.

A Sultan, beholding a beautiful woman from his terrace, fell violently in love with her. Wishing to inform her himself of the sentiments with which she had inspired him, he imposed upon her husband Feiroux a commission to be executed immediately. As soon as he was gone, the Sultan found means to penetrate to the apartment of the beautiful Chemsennissa (a name signifying the *Sun of women.*)—The lady seeing him enter, and divining his intentions, said to him: 'The lion would deem himself degraded by eating the leavings of the wolf; and this king of animals disdains to slake his thirst in the stream which the dog defiles with his impure mouth.' The Sultan comprehending that he had nothing to hope, retired in such confusion as to forget one of his slippers.

Feiroux had set off with such haste, that he had omitted to take with him the order written by the Sultan; and returning to get it a moment after the letter had departed, perceived his slipper. His jealousy was excited to the highest pitch; but he dissembled it through fear of the Sultan, and resolved to repudiate Chemsennissa. He induced her, accordingly, under a plausible pretext, to go and pass some days with her father, and gave her a hundred pieces of gold. She obeyed; but some time having elapsed without the appearance of Feiroux, she became alarmed, and communicated her fears to her brothers. They repaired together to the Vizier, to learn the reason of his absence. He replied without entering into any explanations, that the dower which had been agreed upon having been paid to Chemsennissa, there were no further questions to be asked. The case was then brought before the tribunal of justice.

The Sultan was in the habit of being present at trials, in order to restrain the Cadis. The brothers of Chemsennissa spoke thus:—"My lord, we leased to Feiroux a delicious garden, a terrestrial paradise; we consigned it to him, surrounded by lofty walls and filled with the finest trees, adorned with flowers and loaded with fruit. He now wishes to give us back this garden, deprived of every thing that rendered it delicious when he received it from us."

The Cadi having commanded Feiroux to assign his reasons, he said—"It is unwillingly that I renounce the enjoyment of this spot, which was dear to me; but one day, whilst walking in one of its paths, I perceived the traces of a lion: fear seized upon my soul, and I preferred abandoning the garden to that terrible animal, to exposing myself to his rage."

The Sultan, who easily understood the enigma, anticipating the Cadi, said to Feiroux—"Return into thy garden, Feiroux; thou hast nothing to fear. It is true that the lion has placed his foot in it, but he has touched none of the fruit; and he left it, overcome with shame and confusion: there never was a more beautiful garden, nor one, at the same time, better guarded and secure from danger."

Feiroux took back Chemsennissa, and loved her still more ardently when he discovered the difficult trial to which her virtue had been exposed without succumbing.

Fine Sentences in Hooker.—Hooker, in his "Ecclesiastical Polity," says "the time will come

when three words, uttered with charity and meekness, shall receive a far more blessed reward than three thousand volumes written with disdainful sharpness of wit.

Nature is often hidden, sometimes overcome, seldom extinguished. Force maketh nature more violent in the return, doctrine and discourse maketh nature less importune, but custom only doth alter and subdue nature.

Hope.—This passion "predominates in every mind, till it has been suppressed by frequent disappointments."

Men in great places are thrice servants—servants of the sovereign or state, servants of fame, and servants of business, so as they have no freedom, neither in their persons, nor in their actions, nor in their times.

Low Company.—He that sinks into a familiarity with persons much below his own level, will be constantly weighed down by his base connexions; and though he may easily plunge still lower, he will find it almost impossible ever to rise again.

Pedantry proceeds from much reading and little understanding. A pedant among men of learning and sense may be likened to an ignorant person giving an account of polite conversation.

DOMESTIC INTELLIGENCE.

Churches in the far West.—An Episcopal association has recently been entered into in this city, for raising a permanent fund towards aiding in the construction of churches, in the fastly growing States of the West. The aims and the prospects of this association were admirably explained on Sunday evening at St. Thomas's church, to a large auditory, and the information there communicated, cannot fail of adding both to the means, and the zeal of the associates.

It was stated as the uniform result of inquiries in the western and south western states, that the great difficulty in collecting and maintaining congregations there is, the want of suitable houses of worship. Religious impressions, attachment to the church of their fathers, and the desire again to participate in its rites—all these exist abundantly.—But in a new country, thinly settled, and requiring all the means of all the households to provide for the wants of the hour—there is little or no ability to lay aside money for the construction o churches. The proposition then, is to raise a fund here—to be managed by trustees—from which loans shall be made at a very low interest, or without interest, according to the exigency of the case, towards building churches. These are to be really loans, not gifts, to be repaid as the churches grow, and to be re-loaned again, when needed, at still more distant points.

This seems to us so clearly a just and very unquestionable object of interest to all Protestants, and to Episcopalians in particular, that we so far depart from our usual course in such matters, as to make this notice of it.

[*From the Courier and Enquirer.*]

Very commendable Competition.—Mr. Clark formerly Clerk of the United States House of Representatives, and Mr. Shackford, Sergeant-at-Arms of the Senate, at a late meeting of the Washington Bible Society, entered into a rivalry that resulted very much to the advantage of that institution, and we are glad that the officers of Congress can afford to lay out their money so liberally upon benevolent objects. Mr. Shackford rose in the meeting and moved the following resolution, which was read by Mr. Clark, as President of the Society:

Resolved, (by Divine permission) I will pay to the Secretary of the American Bible Society, for value received, one thousand dollars in four annual instalments of $250 each, payable on the first day of February, in the years 1836, 1837, 1838, and 1839, without defalcation. [Signed]

J. Shackford.

After a few remarks the President handed the resolution to the Secretary, and the following was found to be appended.

"I will pay the like sums on the same terms."

M. St. C. Clark.

Cholera.—Exagerated accounts are prevailing of the existence of this disease on the Western waters. St. Louis particularly, was said to be suffering, but the Missouri Republican of 30th ult., asserts that no Cholera exists there at all.

[*From the Detroit Journal.*]

Great Speculations.—Buying and selling is the order of the day. Our city is filled with speculators who are all on tip toe. Several snug fortunes of from ten to twenty thousand dollars, have already been made. Gov. Cass has disposed of the front part of his farm, as far back as Larned street, for one hundred thousand dollars. Extensive improvements are rapidly making in Detroit:—Our city authorities are authorized to obtain a loan of one hundred thousand dollars, and ourselves think seriously of advertising for sale a number of bad debts.

Explosion and loss of life.—A part of the powder mills belonging to Mr. Spencer Cooper, near Lexington, Ky., were blown up a few days since, and a black man, the property of Mr. Cooper, was so badly injured that he died in a few hours. —[Courier.]

Railroad Accident.—The Ebenburg Spy states that Conrad M. Strohm, a printer, originally from Lancaster county, Pa. was killed on the Portage railway on Saturday, the 30th ult.

Mr. Johnson, master of a canal boat on the Schuylkill, was instantly killed on Friday last, by the falling of a part of the tow path bridge under which he was passing at Norristown.

Citrus Ponzinum or Poncine Lemon.—A very fine citron or lemon of this name, has just been sent to us, by Mr. Thomas Hogg. It weighs 9 1-2 oz. Avoirdupois, and is 8 1-2 inches in length.

It was picked about two weeks since, before it was perfectly ripe, at Dr. D. Hosack's place at Hyde Park. Its perfume is delicious.

Council with the Indians.—We understand, that the Secretary of War has appointed Governor Stokes, Gen. Arbuckle, and Maj. F. W. Armstrong, Commissioners on the part of the United States, to hold a Council with as many of the civilized and uncivilized Indians west of the Arkansas as can be convened at the time which shall be appointed to hold it, for the purpose of effecting a general treaty of amity and friendship between all the various nations and tribes roving on our western frontier, including those in Texas, in the neighborhood of the Rocky Mountains, &c. &c. This council can hardly fail to be a very interesting one, as we understand that several thousands of these untutored sons of the forest and of the prairie are expected to attend. It was not known, when the steamboat Arkansaw left Fort Gibson, on Thursday last, where the Council will be held—possibly at that post, but more probably at Fort Arbuckle, or perhaps somewhere in the prairies. Three Camanche Indians had been at Fort Gibson several weeks, and excited considerable curiosity. They were highly delighted with the Arkansaw and Compromise, which were the first steamboats they ever saw. They were to leave, in a few days, under escort of a company of Dragoons, for the purpose of inviting the various tribes or bands belonging to their nation, to attend the Council.—[Arkansas Gaz.]

Commerce of Newark.—Under this head, the Daily Advertiser of that place, states the following facts:—

The Committee appointed to inquire into the practicability of a line of Southern Packets at this port, made an interesting report on this subject at the adjourned meeting on Friday evening, of which William Wright was chairman, and Peter S. Duryee Secretary. We learn from this document, drawn up after the most careful investigation, that the annual exports of this town exceed in value the immense sum of EIGHT MILLIONS OF DOLLARS: and that the chief amount is shipped thro' New York to southern ports in the United States, South America, and the West India Islands, at an expense in freight of upwards of fifty one thousand dollars annually. The Committee also state, that the present mode of sending goods and produce to the port of New York for shipment, is a direct tax upon the producer and consumers of at least twenty two thousand dollars per annum, in cartage, ferriage, &c. From these facts it appears that the annual expense of our shipments exceeds $73,000, and we believe, from conversation with some of our manufacturers, that this is really less than the actual amount, one third of which, at the least, might be saved by a line of packets freighted at our own wharves.

The Committee concluded with a unanimous declaration, that a *line of packets* should be established to the Southern States and South America. A Committee was appointed to take the necessary steps to carry the resolution—if possible—into effect.

New Church.—A new church has been recently organized in the southern part of Brooklyn. A building, we are told, is to be erected forthwith which will be the fifth Episcopal church in the city of Brooklyn.

From Charleston, we have by the Steam Ship papers of Saturday afternoon last—

The U. S. Branch Bank had subscribed $1000 to the fund for the relief of the sufferers by the late fire at Charleston.

The Steam Packet David Brown has been withdrawn from the Norfolk route and put on her old route to Charleston, where she is so well known.—She leaves on Wednesday, and will continue to leave here every other Wednesday, so that we shall now have alternately with Charleston two steam packets per week, by which arrangement the facilities for travelling will be greatly increased between the North and the South, and must certainly to our merchants and the travelling community in general be of very great and decided advantage.—[Daily Adv.]

Steamboat Erie.—The elegant Troy Steamboat Erie, Capt. *Benson*, arrived in this city last evening about 9 o'clock on her first trip the present season—having left New York yesterday, at 10 A. M. She has been detained thus long from resuming her place in the regular line of Steamboats between this city and New York, in order to undergo some important alterations in her engines, in the position of her boilers and in her decks.—These have now been finished: and she has been, in the mean time, otherwise thoroughly repaired in every part, newly painted and furnished. She is now in complete sailing order, with increased conveniences for the accommodation of the public.—[Troy Wig.]

The report of the Secretary of the Treasury upon the Commerce and navigation of the United States, for the last year, gives the following information:—

The whole tonnage of the U. States amounts to 1,606,150 tons. Of which

Massachusetts owns	467,659	New York	340,758
		Maine	225,361

The distribution in the various cities, &c. is as follows:—

New York city owns	323,733	New Orleans	69,903
Boston	189,394	Baltimore	50,108
Philadelphia	79,550	Portland	49,019
New Bedford	76,849	Salem	31,877
Nantucket	64,545	Barnstable	30,540

The whole number of vessels of every description built in the U. S. within the year, was 1,188. The whole number of ships built was 144. Of those there were built—

In Massachusetts		In New York	26
In Maine	54	In all other States	27

—[Dai. Adv.]

From Matanzas we have, by the brig Th. Genor papers of the 4th inst. They furnish but little intelligence,. A list is published on the 4th. of vessels arriving at, and departing from, that port during the month of May, which gives this result:

Arrivals, - - -	73
of which—*American*, - -	54
Departures, - -	47
of which—*American*, - -	33

Latest from Mexico.—By the schr. Gazette, arrived at New Orleans, we have intelligence from Tampico to the 30th ultimo. Gen. Santa Anna entered Zacatecas on the 8th of May, after an obstinate resistance of five hours, by the militia of that city, 800 of whom were killed.

EUROPEAN INTELLIGENCE.

LATER FROM EUROPE.—By the packet ship ENGLAND from Liverpool, we have our London papers to and of the 8th ult., and Liverpool papers of the 9th.

The U. S. Frigate *Constitution*, with Mr. Livingston on board, sailed from Havre, it is stated in the London papers, on the 5th May—the England, sailed on the 9th from Liverpool. Capt. *Maxwell*, therefore, has the credit of beating that fine frigate in a passage to the westward.

It is said in some of the French journals, that an attempt was to be made by the Ministry, to add in the House of Peers a proviso to the Indemnity Law, nullifying that of the Chambers. This we deem impossible, seeing that the *Duc de Broglie* adopted, and heartily concurred in M. *Valaze's* proposal.

Mr. Livingston left his Secretary in charge of the legation; but with instructions, as is understood, to leave Paris, if the bill, as it went from the Deputies, should be passed by the Peers.

In England, the chief event is the defeat of *Lord John Russell*, by the Tories, in South Devonshire. It seems to have been unexpected, and to have been followed on the part of his colleagues in the ministry, with an exercise of the King's prerogative in a very unusual manner, by the revocation of the commission to *Lord Heytesbury* as Governor-General of India, of *Lord Amherst* as Commissioner to Canada, and of *Sir Howard Douglass* as Governor of the Ionian Isles. All these functionaries had been appointed by Sir Robert Peel, had made all their arrangements, and were on the point of embarking.

Mr. Chas. Grant, created *Baron Glenelg*, is to be the Governor of India.

In Portugal affairs are quiet. The young Queen attended in person to prorogue the Cortes,—and delivered a speech, for which we have no room today.

Both Chambess had addressed her to choose another husband, and she had replied to the Deputations that though she was oppressed by her recent loss, she would take their advice into consideration, and that they might expect from her those sacrifices which the country demands.

In Spain rumors of unconfirmed of battles between *Zumalacaraguay* and General *Valdez*, had been circulating. Lord *Elliot* had effected one good result, that of inducing more humanity in the mode of conducting the war, and in the treatment of prisoners.

PARIS, May 5.—The following are the conditions to which Charles V. is ready to accede, in order to put an end to the civil war:—1. He is ready to abdicate the throne in favor of his son, who should take the name of Charles VI.—2. He is ready to quit Spain as soon as Queen Christina shall leave the kingdom.—3. He permits the immediate bethrothing of his eldest son to the Princess Isabella.—4. He recognizes the debts contracted and consolidated since the death of Ferdinand VII.—5. He promises a full and entire amnesty, for political offences.—6. He promises the immediate convocation of the ancient Cortes to revise and give a legitimate and definitive sanction to all acts since the death of Ferdinand VII., which he will not recognise because they emanated from an illegitimate authority. All the other proposals have been rejected by Don Carlos.—[Election.]

The Orpheus, packet ship, from Liverpool, brings us London dates of the 15th, and Liverpool of the 16th ult.

The papers are barren of interest. Parliament re-assembled on the 12th, but nothing of importance had been done.

Lord John Russell is a candidate for *Stroud*, in the place of Col. Fox, who has accepted the Chiltern hundred in order to make a vacancy for him.

The Yorkshire election of Lord Morpeth was decided in his favor by a majority of 2800. He goes as Chief Secretary to Ireland.

The Paris dates are to the 14th. The Chamber of Peers were wholly absorbed in the trials of the Lyons people, and much excitement prevailed in the press and people of Paris. Not a word of our affairs.

Rear Admiral Lewis committed suicide in London, by blowing out his brains. He was 65 years old, and had recently married his maid servant.

Sir G. Grey, in answer to a question from Mr. Hume, stated that Lord Aylmer would be recalled from Canada, and the present Government meant to appoint a commission of two or three persons to proceed to Canada, instead of intrusting the investigation of differences that prevail in the colony to *one* commissioner, as the late Government had intended to do. Earl Amherst, the commissioner appointed by the late Government, has declined the offer made him by the present Government, to preside over this commission.

NEW PEERS.—Friday evening's *Gazette* contained the elevations to the Peerage of Mr. Littleton as Baron Hatherton, of Hatherton, in the county of Stafford; and Lieut.-General the Right Honorable Sir John Byng as Baron Strafford, of Hamondsworth, in the county of Middlesex.

The following is a *hit*, from the London Morning Chronicle, at the new made Peer, Alex. Baring.

We understand, that in consequence of some inconvenience occasioned by there being at this moment two Lady Ashburtons, the newly created Peer conveyed to the lady who enjoys a priority of title, a *humble* request that she would assume the name of Dowager, to avoid any confusion in their correspondence, &c. The noble Lady in question very naturally demurred to the propriety of this unprecedented arrangement under such circumstances; when it was agreed upon to refer the dispute to *Garter* King-at-Arms; who, after the maturest consideration, has decided that the new made Peer himself is more evidently entitled to the distinction; and is henceforth, therefore, to be entitled the *Dowager Lord* Ashburton.

THE REV. JOSEPH WOLFF.—This renowned traveller has signalized his return to England by giving lectures at Falmouth, respecting the countries he has visited and the adventures he has gone through. The provincial journals tell us that they were crowded; and it seems likely that this *Wolff* will supersede Captain Ross as the *Lion* of the day.

PLYMOUTH.—The late Ambassador from the U. States to France (Mr. Livingston) is sojourning for a few days with his family at Whiddon's Hotel, in this borough. His Excellency arrived here yesterday in the Constitution American frigate, 50 guns, 460 men, Captain Elliot, bound to the United States from Havre. The Constitution had been off port in heavy weather and fog for several days before she bore up. The frigate fired a Royal salute this forenoon, which was answered by the San Josef guard-ship, Captain Falcon, C. B., the commander, having previously gone alongside the Constitution. A Royal salute was also fired from the batteries of the citadel, in compliment to the American Ambassador. The ladies of Mr. Livingston's family have suffered much from sea sickness, and the hon. gentleman himself does not appear in good health. The wind continues contrary, and it is to be hoped that ere it prove favorable for the Constitution to proceed, himself and companions will have received the advantage of repose and change of air.—[London Times, 14th.]

FATAL ACCIDENT IN VAUXHALL-ROAD.—About three o'clock on Monday afternoon, the neighborhood of Vauxhall-road was thrown into great consternation by a terrific report, followed by a shock by which all the surrounding houses were shaken to their foundations. It was discovered that the shock proceeded from the bursting of a powerful steam-engine boiler on the premises of Mr. Ring, sugar-boiler, which had exploded with such violence as to tear the walls of the building in which it stood to pieces, to lift the roof up into the air, and to hurl from its foundation, and precipitate on the premises in Maguire street, a lofty chimney belonging to the engine-house. The house upon which the materials fell with the most destructive effect, was one occupied by Mr. Acton, in which were himself and his wife, a friend named Mincur, and a niece who was in an upper room. The shock was so violent as to force in the roof, carrying with it floor, furniture, bedding, &c., and burying all the inmates, with the exception of the female last mentioned, in the ruins. Mr. Acton and his wife had a most narrow escape, being preserved by the joists and timbers falling over them in such a way as to protect them from the superincumbent materials. Mr. Mincur was taken from the ruins alive, but was so dreadfully crushed that he died almost immediately. A considerable part of the roof and walls of the engine-house fell directly down, crushing both the engineers, John Colley and William Young, to death, and at the same time killing a laborer of the name of Henry Bennett.

From Mr. Ring's evidence, one of the partners, it appeared that about two months ago he got a new boiler,—the one in question, which was placed on the ground floor of the building, in a part of the sugar-house which had been recently built. On Monday morning, about six o'clock, a fire was lighted under the new boiler. The foreman of the manufactory had told him the boiler would bear a pressure of 50lbs. to the inch. When the steam was up, he fixed the pressure at 35lbs., and afterwards reduced it to 30lbs., giving the engineer a caution not to exceed that amount. At two o'clock, having been into the town in the meanwhile, he found the pressure the same. About a quarter before three he had occasion to go to another part of the premises, and about three o'clock, while standing at the gate of the premises, he heard a dreadful explosion, and saw a great escape of steam.

John Kendrick, foreman to Messrs. Houghton and Ashton, deposed to the boiler having been made. It was ordered to be of the best materials, and fullest strength. This was done. He particularly attended to the making of it. It was about 20 feet long, and 5 feet by 5 1-2 in breadth and depth. It was proved with cold water before leaving the manufactory, and bore 1000 lbs. to the inch. That was considered as equal to 501 lbs. of steam. That was the uniform method of proof.

John Arrisse Burrows, a miller in the employ of Messrs. Ring & Vickers, said the engine was short of power the whole day on Monday. About a quarter before three he informed the engineer (Young) about it. He said he could not raise any more steam. Witness saw him assist the fire while he was there. On returning to the mill he saw no alteration in the speed, and about a quarter of an hour afterwards the explosion took place.

Other evidence was produced, but it merely tended to corroborate the above. The jury immediately brought in a verdict of accidental death.—[Liverpool paper.]

DIFFICULTIES OF COLONIZING AFRICA.—The French have now occupied a part of the country for five years; not only with a much larger army than any modern European state yet employed in the foundation of a colony, but far exceeding in numbers the first inhabitants of any new settlement: and what is the result? No one dares stir beyond the military lines occupied by the invaders: the colony is a heavy drain upon the finances of the mother country; and this drain is likely to continue, as well from the nature of the climate, which afflicts Europeans with sickness, as from the hostility of the natives, whose incursions—difficult to prevent and impossible to punish—would be alike destructive to crops and cattle. To civilize them, if practicable, would require the lapse of several generations; to build a wall along the line of the Sahara, would be effectual, and is *possible*, though the game would not be worth the candle; and to do what Europeans have mostly done when they came in contact with irreclaimable savages—exterminate them—would not be so easy a matter with the Bedouins as with the Red Indian, the Hottentot, and the Australian.

SERIOUS JOKING.—The French are so lively a people that they jest upon every thing; "murder in jest," as Hamlet has it. Of the two poor American missionaries destroyed by the savages, they say that they fulfilled their mission and supplied the cannibals with Christian nourishment!!

A few days ago the remains of a farmer were interred at Stevenage, in Hertfordshire, who died many years ago, and bequeathed his estate, worth 400*l.* a year, to his two brothers, and if they should die, to his nephew, to be enjoyed by them for thirty years, at the expiration of which time he expected to return to life, when the estate was to return to him. He provided for his re-appearance by ordering his coffin to be fixed on a beam in his barn, locked, and the key inclosed, that he might let himself out. He was allowed four days, grace beyond the time limited, and not presenting himself, was then honored with Christian burial.

RAILROAD JOURNAL AND ADVOCATE OF INTERNAL IMPROVEMENTS.

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Or a Map of the United States, 24 by 40 inches, on which is delineated all the Railroads and Canals in use, or in course of construction, and most of those in contemplation; together with a concise description of, or reference to, each, and containing over 70 pages of letter press. The map is on bank note paper, and put up in pocket form, with morocco cover, or in paper cover, and may be sent by mail to any part of the country. Price $2

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A monthly publication, in large octavo form, of sixteen pages each number—designed to *persuade* APPRENTICES, and others, to habits of INDUSTRY, TEMPERANCE, and FRUGALITY—is published at the office of the MECHANICS' MAGAZINE, No. 35 Wall street, New-York, for FIFTY CENTS a year—for 12 numbers—by D.K. MINOR.

*** All letters must be postage paid. Eleven numbers sent to one address for $5,—and TWENTY-THREE for $10. D. K. M.

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This work is composed of the choicest articles of the three preceding works; its character may therefore be understood by reading those advertisements. It has been published at $5, but will be, hereafter, at $4 per annum—always in advance; each quarterly number to contain about 220 pages.

These works may all, or either of them, be had of H. Blydenburgh, 96 North Pearl street, Albany; D. Hale, 124 Washington street, Boston; Fessenden, Philadelphia; or of the Proprietor and Publisher,

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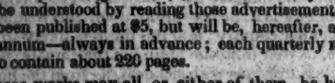

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Passengers will leave Paterson at			New York, by Jersey City Ferry at		
6½ o'clock, A. M. by	Steam		5½ o'clock, A. M. by	Horses	
10½ " "	Steam		8 " "	Steam	
2½ " P. M.	Horses		11½ " "	Steam	
5½ " "	Steam		3 " P. M.	Horses	
6½ " "	Horses		6½ " "	Steam	

ON SUNDAYS.

Paterson at 5½ o'clock,	A. M. by	Steam,	
3½ "	P. M.	Horses,	
5 "	"	Steam,	
New York at 8 o'clock,	A. M. by	Steam,	
9½ "	"	Horses,	
6½ "	P. M.	Steam.	

Ticket Office in Paterson, corner of Congress and Main streets, opposite "Congress House."

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Passengers with Tickets will have a preference in seats.

Fare from Jersey City, 50 Cents.

Transportation Cars will also ply three times a day each way.

As the Ferry boats do not leave New York precisely at the above times, it is recommended to passengers to procure their tickets and to be at the Ferry a few minutes before the stated hours of departure.

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Wanted, a partner in an extensive Printing Establishment. No one need apply who is not a thoroughbred printer, competent to superintend and direct an office in which upwards of 30 persons are employed, and able to furnish $3000 cash capital. The best of references will be given and required. Letters, with *real* name, may be addressed to P. P. P., Post Office, New-York, postage paid, and they will be promptly attended to. May-tf

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By an Act of the Legislature of the State of Pennsylvania, passed the 14th day of April, 1835, five per cent. interest is guaranteed to the Stockholders of said Company for the term of twenty years.

The books for subscription of the above Stock will be opened at the Exchange in the City of New-York, on Monday, the 22d day of June inst., where one or more of the Commissioners duly authorized will attend.

SAMUEL W. MORRIS,
URIAH SPENCER,
ELIJAH WELSH,
HIRAM BEEBE,
CURTIS PARKHURST,
THOS. DYER,
IRA KILBURN,
THOS. PUTNAM,
WM. WILLARD, Jr.
ASA MANN,
JOHN KNOX,
ROBERT TUBS,
} Commissioners.

June 6, 1835—2t

PHILADELPHIA AND READING RAILROAD.

To Contractors for Excavations and Masonry.

PROPOSALS will be received at Pottsgrove, Montgomery county, between the 7th and 13th of July, for the excavation and embankment, bridge abutments, culverts and drystone drains, of between twenty and thirty miles of the Philadelphia and Reading Railroad, next to Reading.

Persons applying for contracts, will be expected, unless personally known to the Engineer, to present with their proposals, recommendations or certificates, as to qualifications and character.

Plans and profiles of the line, and drawings of the different constructions on it, will be exhibited after the 4th of July, and all other information in relation to the work afforded on application at the Engineer's office at Pottsgrove.

MONCURE ROBINSON, C. E.
Philadelphia, May 30th, 1835. jel1;Jy10

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Wanted, immediately, 40 Tunnel Miners, (Cornish Miners will be preferred,) 80 Drillers, 50 Laborers, and two experienced Mine Blacksmiths, on the New York and Harlem Railroad, about five miles from the City. Liberal wages will be given, and cash payments made every fortnight. Apply at Mr. FOWLER'S, St. John's Hall, Frankfort street, New-York.

JOHN RUTTER, Contractor.

☞ The Albany Argus, Philadelphia U. S. Gazette and Pennsylvanian, will please copy this, and send their bills to the Railroad Company, 14 Wall street, New-York. 23—tf

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MANY & WARD, Proprietors of the Albany Eagle Air Furnace and Machine Shop, will make to order car wheels, chairs and knees, and every other description of castings required for railroads. R-1y feb14

STEPHENSON,

Builder of a superior style of Passenger Cars for Railroad,

No. 264 Elizabethstreet, near Bleecker street, New-York.

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☞ The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years successful operation and now almost universal use in the United States (as well as England, where the subscriber obtained a Patent,) are found superior to any ever offered in market.

Railroad Companies may be supplied with Spikes having countersink heads suitable to the holes in iron rails, to any amount and on short notice. Almost all the Railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

☞ All orders directed to the Agent, Troy, N. Y., will be punctually attended to.

HENRY BURDEN, Agent.
Troy, N. Y. July, 1831.

☞ Spikes are kept for sale, at factory prices, by I. & J. Townsend, Albany, and the principal Iron Merchants in Albany and Troy; J. I. Brower, 222 Water street, New-York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

P. S.—Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand for his Spikes.

1y23am H. BURDEN.

RAILROAD CAR WHEELS AND BOXES, AND OTHER RAILROAD CASTINGS.

☞ Also, AXLES furnished and fitted to wheels complete at the Jefferson Cotton and Wool Machine Factory and Foundry, Paterson, N. J. All orders addressed to the subscribers at Paterson, or 60 Wall street, New-York, will be promptly attended to.

Also, CAR SPRINGS.

Also, Flange Tires turned complete.

J8 ROGERS, KETCHUM & GROSVENOR

PATENT HAMMERED SHIP, BOAT, AND RAILROAD SPIKES.

☞ Railroad Spikes of every description required, made at the Albany Spike Factory.

Spikes made at the above Factory are recommended to the public as superior to any thing of the kind now in use

Ship and Boat Spikes made full size under the head, so as not to admit water.

Orders may be addressed to Messrs. ERASTUS CORNING & CO., Albany, or to THOMAS TURNER, at the Factory, Troy, N. Y. sept.13-1y

RAILWAY IRON.

95 tons of 1	inch by ½	inch,	*Flat Bars* in lengths of	
200 do. 1½	do.	do.	14 to 15 feet, counter sunk	
40 do. 1¼	do.	do.	holes, ends cut at an angle	
800 do. 2	do.	do.	of 45 degrees, with splic-	
800 do. 2½	do.	do.	ing plates and nails to	
soon expected.			suit.	

250 do. of Edge Rails of 36 lbs. per yard, with the requisite chairs, keys and pins.

Wrought Iron Rims of 30, 33, and 36 inches diameter for Wheels of Railway Cars, and of 60 inches diameter for Locomotive wheels

Axles of 2½, 2⅝, 2¾, 3, 3⅛, 3¼, and 3½ inches diameter for Railway Cars and Locomotives of patent iron.

The above will be sold free of duty, to State Governments and Incorporated Governments, and the Drawback taken in part payment. A. & G. RALSTON.

9 South Front street, Philadelphia.

Models and samples of all the different kinds of Rails, Chairs, Pins, Wedges, Spikes, and Splicing Plates, in use both in this country and Great Britain, will be exhibited to those disposed to examine them. d71meowr

SURVEYORS' INSTRUMENTS.

☞ Compasses of various sizes and of superior quality warranted.

Leveling Instruments, large and small sizes, with high magnifying powers with glasses made by Troughton, together with a large assortment of Engineering Instruments, manufactured and sold by

E. & G. W. BLUNT, 154 Water street,
J31 6t corner of Maiden lane.

SURVEYING AND ENGINEERING INSTRUMENTS.

☞ The subscriber manufactures all kinds of Instruments in his profession, warranted equal, if not superior, in principles of construction and workmanship to any imported or manufactured in the United States; several of which are entirely new, among which are an Improved Compass, with a Telescope attached, by which angles can be taken with or without the use of the needle, with perfect accuracy—also a Railroad Goniometer, with two Telescopes—and a Leveling Instrument, with a Goniometer attached, particularly adapted to Railroad purposes.

WM. J. YOUNG,
Mathematical Instrument Maker,
No. 9 Dock st., Philadelphia.

The following recommendations are respectfully submitted to Engineers, Surveyors, and others interested.

Baltimore, 1832.

In reply to thy inquiries respecting the instruments manufactured by thee, now in use on the Baltimore and Ohio Railroad, I cheerfully furnish thee the following information. The whole number of Levels now in possession of the department of construction of thy make is seven. The whole number of the "Improved Compass" is eight These are all exclusive of the number in the service of the Engineer and Graduation Department.

Both Levels and Compasses are in good repair. They have in fact needed but little repairs, except from accidents to which all instruments of the kind are liable

I have found that thy patterns for the levels and compasses have been preferred by my assistants generally, to any others in use, and the Improved Compass is superior to any other description of Goniometer that we have yet tried in laying the rails on this Road.

This instrument, more recently improved with a reversing telescope, in place of the vane sights, leaves the engineer scarcely any thing to desire in the formation or convenience of the Compass. It is indeed the most completely adapted to lateral angles of any simple and cheap instrument that I have yet seen, and I cannot but believe it will be preferred to all others now in use for laying of rails—and in fact, when known, I think it will be as highly appreciated for common surveying.

Respectfully thy friend,
JAMES P. STABLER, Sup't of Construction
of Baltimore and Ohio Railroad.

Philadelphia, February, 1833.

Having for the last two years made constant use of Mr. Young's "Patent Improved Compass," I can safely say I believe it to be much superior to any other instrument of the kind, now in use, and as such most cheerfully recommend it to Engineers and Surveyors.

E. H. GILL, Civil Engineer.

Germantown, February, 1833.

For a year past I have used Instruments made by Mr. W. J. Young, of Philadelphia, in which he has combined the properties of a Theodolite with the common Level.

I consider these Instruments admirably calculated for laying out Railroads, and can recommend them to the notice of Engineers as preferable to any others for that purpose.

HENRY R. CAMPBELL, Eng. Philad.
m1 1y Germant. and Norrist. Railroad